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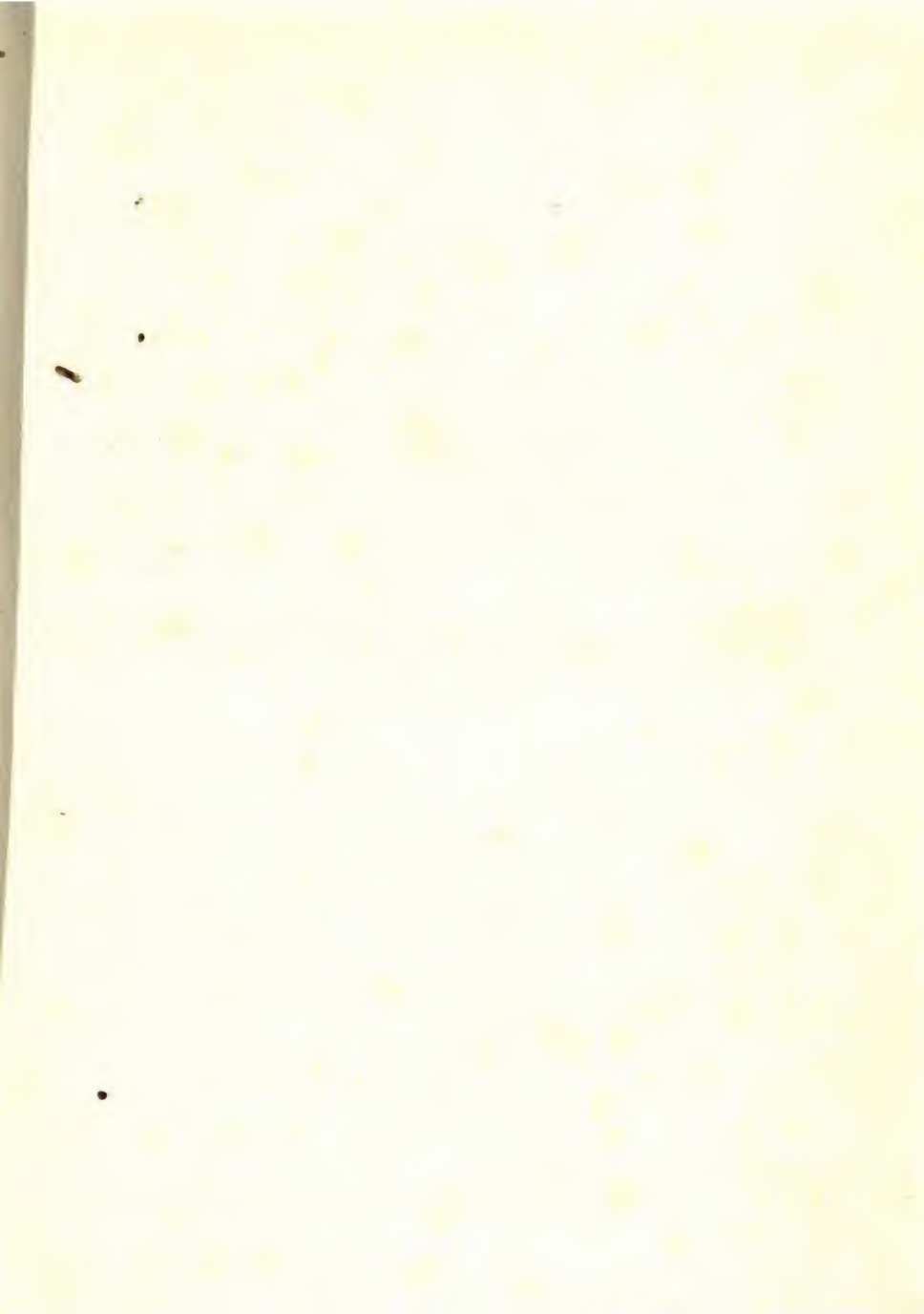
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Budapest and the Danube from St. Gellert Hill

Along the Great Rivers

BY
GORDON COOPER

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Acknowledgments

Acknowledgment is made to the Cresset Press Ltd. for kind permission to quote from John Lehmann's book *Down River* on pages 107-8.

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Introduction

Like Victor Hugo, I love rivers; they do more than bear merchandise—ideas float along their surface. Rivers, like clarions, sing to the ocean of the beauty of the earth, the fertility of plains, and the splendour of cities.

* To me, as to many others, a journey by boat along a river is the perfect form of transportation and also of relaxation. I certainly admire the varied uses to which great rivers are put in the service of man, but their enchantments come from something else: they are "heaven sent" as Homer sang. Poets through the ages have never tired of penning rhapsodies about the felicity of flowing streams; and, in contrast, they have likewise clothed in poetic imagery dark fantasies of the Rivers of Death.

Nothing seems more permanent to us than the rivers, the rocks, and the hills of the earth. The brook "goes on forever", the rocks are "eternal", and the hills are "everlasting".

But the lives of rivers and rocks and mountains cover no great span in geological time—no greater time, in fact, than do human lives in the history of mankind. Their vicissitudes are as many, their relationships as intricate, and their tenure of existence as short in terms of geological epochs as are ours by the yardstick of changing human events.

This book, however, is not a geological treatise, and my aim is rather to picture in words the fascinating stories of some of the world's greatest rivers—life stories in fact. Their biographies are of absorbing interest. The wars they wage, the campaigns they fight, the munitions they employ, the victories they win, the defeats they suffer and the scarred battlefields they leave behind them, make their struggles against nature and among themselves closely parallel to the often warlike course of human affairs.

Like human being, too, the streams have their lusty youth, flowing down steep grades with dashing, care-free abandon; their adolescence, taking on the more circumspect characteristics of grown-up waterways; their maturity, in which

the Mediterranean. The Nile is, without a doubt, the most interesting of the world's great rivers. Homer thought this, for he referred poetically to it by stating that "The Nile flows down from heaven." Father Nile has, in fact, been an object of veneration since the days of the ancients, and a gift of its waters was considered by them as a present fit for kings and queens. Even to-day the Egyptians say that "If Mahomet had tasted the waters of the Nile, he would have prayed God to make him immortal, that he might have enjoyed them for ever."

The Nile and the Zambezi, along which I have also travelled a considerable distance, are my two selections in Africa for detailed descriptions; in Europe, the Volga and the Danube are obvious choices, although some of the smaller rivers may possibly possess greater charms; and, for Australia, it is a case of the Murray-Darling or none at all.

The Amazon will suffice for South America; the Mississippi and the St. Lawrence in North America, the last-named being the most commercialized river in the world, while, for Asia I have chosen the Yangtze Kiang and the Ganges, not without some qualms at having to miss out other very interesting rivers such as the Euphrates, the Mekong and the Yenisei.

All the rivers I propose to describe have a personal importance in the annals of the world. They are not merely water-conveyors. It is therefore their individual appeal and general interest I will stress: their antiquarian and legendary lore, their history, the people who live on their banks, the wild life to be found in their vicinity, and outstanding natural curiosities to be found on their courses. I will, of course, touch upon any material blessings bestowed on mankind through their agency, but I will keep figures as much as possible out of it, for they interest me no more than they do the average reader. Who cares whether the Nile is 4,000 or 4,200 miles in length? It is merely for the interest of comparisons that I present any figures.

And now, for Father Nile, perhaps not the longest, but certainly the most fascinating river in all the world.



Burning ghats at Benares, on the Ganges



Looking across the Nile at Cairo

Chapter One

THE NILE

THE GREATEST RIVER

Few persons would question the assertion that the Nile is the most wonderful of all rivers and the greatest single stream on earth. In length, with the competing claims of the Amazon and the Mississippi, it is the third longest. Save for a single loop, it flows straight from south to north, and for a distance of 4,000 miles. Its mouth, in fact, lies almost in the same degree of longitude as its source.

No other river courses through so varied a terrain. The largest lake in the eastern hemisphere is contained within its basin. Animals, birds and vegetation, both alpine and tropical, can be found there. Hundreds of different races of men—Christians, Arabs, cannibals, giants and pygmies, struggle for power and wealth, and supremacy of colour can be traced back for six thousand years.

Of no other river, either, can it be said that its very existence is the sole reason for a large, populous, and wealthy country. For, without the Nile, there would certainly be no Egypt, and this part of the African continent would then simply be an added portion of the great Sahara Desert.

Though one of the first rivers known to man, the Nile remained a geographical puzzle until modern times. Its source was believed to be in some fabulous region in the heart of Africa, where it was fed from snow-capped peaks that Aristotle called the Silver Mountains, and by later geographers, the Mountains of the Moon. But all this was pure conjecture.

Nearly five centuries before the Christian era, the first great African traveller, Herodotus, writing about the Nile, said: "Respecting the nature of this river, I was unable to gain any information, either from the priests or any one else."

Seneca wrote that the Emperor Nero sent an exploring expedition under two centurions with military force to explore the countries along the banks of the White River, and to search for the Nile's sources. They passed down the river a considerable distance until they encountered immense marshes. They forced their way through, and continued their journey southward, but were at last obliged to turn back and declare their mission a failure.

About seventy years later, during the Second Century, we find Claudius Ptolemy, a celebrated geographer and astrologer of Alexandria, writing about the Nile and its sources. He tells us that the "holy stream" rises some twelve degrees south of the equator, in a number of streams that flow into two lakes, situated east and west of each other; from which, in turn, issue two rivers; these afterwards unite and form the Nile. Ptolemy also mentions that in the interior of Africa are some mountains which he calls "Selenes Oros"—generally translated "Mountains of the Moon".

Following in the steps of Ptolemy, come the Arab geographers, and they are stated to have practically adapted all his theories and geographical notions.

Later on we know that the Portuguese travellers obtained a considerable amount of information regarding the geography of the interior of Africa. They appear to have had some knowledge of the existence of several large lakes in the centre of the continent, and in some of their early maps these lakes find a place.

It appears to have been known even to the ancients that the Nile proper is formed of two principal branches, which join and form one river close to where the town of Khartoum now stands; but beyond this they had little authentic information.

It was, however, in the years 1768-73, that the explorer, James Bruce, discovered the source of the Blue Nile and traced its course, from among the mountains and highlands of Abyssinia. In 1788 the African Association was founded, and in furtherance of its objects much information was obtained of the geography of the "Dark Continent". In 1827, M. Linant, a French traveller, passed up the White Nile to

a considerable distance above its junction with the Blue Nile branch. About the year 1840 two Egyptian naval officers headed an expedition, fitted out by Mahommed Ali, then ruler of Egypt; they forced their way through the terrible marshes to no great distance from the equator; but were, like the expedition of the Emperor Nero, at last obliged to turn back.

In 1831 the old African Association was merged into the Royal Geographical Society, and from then on there has come complete knowledge of the Nile and its sources.

Three British names stand out in these discoveries: J. H. Speke¹ who first determined Lake Victoria as the main reservoir for the Nile (1858); Speke and J. A. Grant, who further explored the lake in 1860-62 by reaching the Nile outlet at the Ripon Falls; and Sir Samuel Baker, who in two journeys in 1861-62 and 1863-65 discovered Lake Albert and the Murchison Falls.

Before I take you on a journey from the Ripon Falls to the Mediterranean along the Nile, some geographical information about the river may help towards a better understanding of its background. One remarkable fact, for instance, is that for the last 1,500 miles of its flow it receives no tributary. The consequence is that, by the time it reaches the sea, its volume is considerably reduced both by evaporation and by the large quantity of water used along its banks for irrigation and other purposes.

The river is formed of two branches, the Bahr-el-Azrek, or Blue Nile, and the Bahr-el-Abiad, or White Nile, the latter being the main branch of the true Nile. Its waters are discharged into the Mediterranean through several mouths, the two principal ones being known as the Rosetta and Damietta mouths—the first-named being to the west and the other to the east. The principal island formed by the divisions of the river is shaped like the fourth letter of the Greek alphabet and takes the name of Delta; the Nile is, therefore, the river which first suggested what is now a geographical name for all similar formations at the mouths of rivers.

¹ There is a curious memorial monument to this explorer, very simply inscribed, standing in Kensington Gardens, London.

The rise and overflow of the Nile caused by the seasonal rains of the interior, has been for ages noted for its regularity. The rise commences about mid-summer, reaches its greatest height at the autumnal equinox, and has again subsided by Christmas; leaving the land highly enriched by the fertilizing sediment of red earth brought down by the Abyssinian tributaries and deposited by the river. The land can then be worked and the crops planted. The rise and fall of the river is naturally watched with great anxiety by the inhabitants of the Nile valley, which also accounts largely for the great interest taken by them in the Sudan and the manner in which the waters of the Nile are handled there.

The Nile is generally navigable from the sea to the Murchison Falls, except in low season along a stretch of 900 miles which contains its six so-called cataracts (actually rapids): the first of these is just above Assouan, the only one in Egypt proper, where early Mediterranean civilization ended; the second in the Anglo-Egyptian Sudan, close to Wadi Halfa, marking roughly the northern limits of ancient Cush; the third in ancient Nubia, below Dongola; the fourth at the great bend of the Nile, just above Merowe, obstructed by granite and basalt ridges, and the most difficult of all to navigate; the fifth about 40 miles below Berber; and the sixth in the desert about 55 miles below Khartoum.

Spanning the Nile are three main dams: Assouan, Gebel Aulia (20 miles south of Khartoum), and Makwar (near Sennar on the Blue Nile). There are also a number of lesser barrages, most of them being in Egypt.

Along its banks the Nile is lined with many famous structures and ruins of ancient dynasties, the most outstanding being at Abu Simbel, Luxor, Karnak (site of ancient Thebes), Memphis, and Gizeh; while its outstanding natural curiosity is the famous Sudd, lying in the southern portion of the Sudan. This is a sort of vast floating island of reeds, papyrus, and small plants in the marshes formed by the lower reaches of two of the rivers, and having an area of some 35,000 square miles—larger than Scotland. More will be said about this interesting district later.

The Nile and the countries through which it flows have

always enthralled me, and I have been fortunate enough to have travelled along the river from end to end. It is quite impossible in the necessarily brief account that I now give to do more than touch upon some of the more striking features noted in my journey, and for anyone who wishes to pursue their knowledge of the Nile further I cannot do better than recommend a reading of *The Nile*, by Emil Ludwig. He has told its fascinating story in fine literary style, along with accuracy, and with love.

* * *

On a high bluff commanding the source of the Nile and the Ripon Falls is sited the well-kept course of the Jinja Golf Club. By night it is the haunt of the unwieldy hippopotamus in search of pasture, and there is a "local rule" which must be unique, allowing a player's ball resting in a hippopotamus footmark to be lifted and dropped behind without penalty. A unique golf-course and also a unique spot, for surely the source of the Nile can be termed that.¹

Unlike the genesis of most great rivers, there is here no mere rivulet, for the waters which mark the start of Africa's greatest river pour out of Lake Victoria in considerable volume through a cleft, three hundred yards wide, and then spill themselves over the sixteen-foot-deep Ripon Falls. An engraved stone set on the rock records Speke's discovery of the source of the Nile—"Speke found this source of the Nile in 1862"—and of this particular spot he wrote, "It was a sight that attracted me for hours . . . the roar of the waters . . . the thousands of passenger fish leaping at the falls. . . ."

At this most northerly point of Lake Victoria, almost on the equator, lies the solution of a mystery which has puzzled mankind for thousands of years. When I myself stood there, on this historic site, I felt a strange emotion, not only because of the past, but also at the thought that the waters on which I looked would, in time, find their way down to a distant sea, 4,000 miles away.

¹ Strictly speaking, there is no single source of the White Nile. Just as the first waters of the river come from Lake Victoria, so is this lake supplied from feeders, such as the Kagera, for instance, 450 miles long, whose source might thus also be considered as the natural home of the Nile.

Not far from the Ripon Falls a railway bridge crosses the young Nile, and there is no further bridge for a further two thousand miles. For many miles now the young unnavigable stream makes its way through dense forest, uninhabitable owing to sleeping sickness. There are chains of rapids, and a second waterfall, the Owen Falls, deeper and wilder than the Ripon Falls. Then after forty miles of turbulent foaming and rushing, the river calms down and for over a hundred miles its waters become navigable. Before long Lake Kioga is encountered, into which the Nile pours its waters. This broad, muddy sheet of navigable water, with four great arms, is a lake, sometimes swampy and fringed with papyrus and native villages, through which the river flows for some sixty miles, leaving it at its western extremity. The Nile now has thrown off its eager youth, and has become a shallow, sluggish stream. But even this mood changes, and the waters become more frolicsome again.

They need to be. For we soon come to the Murchison Falls, the last and by far the finest of the waterfalls to be found on the Nile. Local pride in Uganda likes to describe these falls as being among "the world's greatest", and the trouble of reaching them, in this rather remote part of the country, naturally adds to their glamour. (Travellers, I find, usually tend to enlarge upon the magnificence of sights which are not easily accessible to others.) Not that the Murchison Falls are not well worth a visit, for here the young Nile hurls itself through a 19-foot fissure—"a vision of dazzling spray and delicate foam that conceals an irresistible force."

The only way to reach the lip of the fall is by a steep bush path—a gruelling climb I found it to be. It was also an exciting one, for we might have met elephant in our track, as did a previous party, and have been obliged to flee. Even lions have been encountered there. The reward, however, was worth the labour, for the sight is magnificent and awe-inspiring. I stood at the very brink of the chasm with the irresistible flood thundering below. The falls, however, are neither vast nor yet particularly high, but they are unique for the Nile.

Equally, if not more fascinating is the great game reserve through which the Nile now runs until it reaches Lake Albert. I have seldom seen anything quite so amazing, for here all kinds of wild animals, literally in crowds, gazed unconcernedly at our small, pulsating boat as we travelled along.

Of the less common species, the black rhinoceros, buffalo, lions and leopards are to be seen; while the hippopotamus are there in hundreds, the crocodile in thousands, the elephant in dozens, often in hundreds, and a variety of antelope in herds of all sizes. The ugly wart-hog provides a comical spectacle, grey monkeys and the black and white colobus disport themselves by the thousand in the trees, and a fascinating assortment of bird life lines the banks.

Amongst our thrills was the sight of a big bull elephant swimming the Nile just ahead of our steamer; two lions seen killing a small hippo; a lion that had killed and was beginning to eat a crocodile near our launch; and a fight between a hippo and a crocodile, in which the former won. Our boat stopped for a time so that we could witness this epic contest to the death.

Of the fish to be found in the river I will only mention the fierce tiger fish, weighing up to 35 lb., and the Nile perch which weighs up to 260 lb. in the female and 45 lb. in the male. So far, except around Lake Kioga, we have passed little native life, for much of the jungle countryside is uninhabited for various reasons—the prevalence of sleeping sickness and the game reserve being two of the main ones.

The Nile does little more than enter and then leave the extreme northern waters of Lake Albert (another contributing source to the river) before setting out on its hundred and fifty mile journey to the Sudanese border. Over this distance the scenery might be the Thames, for it is park-like land through which the now placid river flows. True, there is still wild game to be seen and more native life, with its accompanying cultivated land. This section of the river is usually called the Albert Nile.

As we approach Nimule the Nile narrows and navigation which has been feasible from Lake Albert ceases. The river

is forced once again into a narrow pass of two hundred feet in width, and plunges into a new series of rapids. The waters are turbulent. At Nimule, however, there is a unique natural bridge, consisting of rank water-plants, so strong that it bears the elephant from one bank to the other, and so powerfully rooted that even when floods have destroyed it, it closes up again of itself.

The Nile now leaves the mountains and the tropics and enters on to its long course through flat country. Between Nimule and Juba, in the Sudan, the river is navigable with difficulty, but at the latter spot, a place as heat-drenched as any in Africa, the journey can be made to Khartoum by a comfortable steamer service. The long trip to Khartoum is accompanied by a well-found ship, complete with ice-making machines, and it remains in my memory as one of my most delightful travel experiences. This journey is best made in the winter months when the mosquitoes are not prevalent, for at other seasons they come in their billions.

Shortly after leaving Juba the Nile enters that vast area of swamps called the Sudd. Here are no oases of dry land: merely lagoons, bush, swamps, and forest. There is a conglomeration of water-plants and papyrus, which continues for hundreds of miles.

The steamer wends its way through the narrow channel surrounded on either side, as far as the eye can see, by this dense mass of perfectly flat swamp—a vast carpet of matted vegetation.

Solitude broods over this lagoon country of the Nile. Yet it is by no means desolate and in many places native villages are to be seen, inhabited by men and women whose clothing needs have been reduced to nil. Elephant, buffalo, and other big game also abound in this area, and hippo and crocodile disport themselves in the river, while, throughout the journey, a remarkable variety of bird life of all descriptions is encountered.

The native tribes of this region are very primitive, but interesting. Often a single white administrator is responsible for an area as big as Wales, so there can be little question of trying to civilize the natives, beyond suppressing their more

objectionable practices: cannibalism, for instance, which used to be prevalent (and may still exist) amongst the Niam-Niam. At the same time, in contrast, this tribe punish thieves severely, honour the mother of many children, and avenge a wife's adultery by cutting off her finger tips, and seduction by cutting off three of the man's finger joints. In fact, in some respects, the Niam-Niams are a most refined and civilized race!

In these swamps there are also vegetarian tribes, living only on milk and millet, and between them and those who like meat there is often hatred. But as often throughout Africa (as elsewhere in the world) there is this state of enmity between neighbours.

One of the strangest tribes in the southern Sudan are the Dinkas, a race of giants, and a Dinka of 6 ft. 4 in. is merely of medium height. Often these men stand motionless in the swamp, literally for hours on end, on one skinny leg, the other supported either in the knee-crook of the standing leg or against its shin, generally leaning on a long staff; by no means asleep but on constant watch.

This constant passion to be statues makes them, indeed, lazy, for they will often rather eat grass soup than take the trouble to fish. Lazier still, however, are the Nuers, another local tribe, who do not even take the trouble to bury their dead.

One other outstanding feature of the Dinkas is their love of cattle, and every man owns some, while the richest may have herds numbering a thousand head. These cattle are regarded as holy, and the beasts are treated with religious care and fervour. This passion for cattle was exploited in the past by cunning slave-dealers, who bartered cows for men, and cattle-stealing was the cause of constant hostile enterprises.

At last the swamp-lands of the Sudd end, after what has seemed to be an eternal journey, and the Nile enters a vast lagoon, called Lake No, where it receives three great tributaries which increase its volume considerably. The course of the river next turns sharply east, and flows in that direction for seventy-five miles, before resuming its north-south

course at Malakal, a town of fair size situated on the right bank.

The character of the countryside now changes completely, as the Nile starts on its long journey through the desert; but it is a desert which sometimes blossoms like a garden. Africa, the real savage Africa, where the Nile passed its childhood and youth, disappears. Arabia has dawned on the horizon, mingled with Nubia, and there is a feeling of an historic past being present in the landscape and amongst the inhabitants.

Here the Nile is not deep, generally fifteen feet, at times only six, so that even the flat-bottomed steamers often run over sand, and the flow of the river over the vast plain is sluggish. For close on eight hundred miles until Khartoum is reached there are no obstacles. The keynote of much of this land is the acacia, in various shades and colours, and there is long grass, which is often burnt out around March, an ineradicable custom prevalent throughout the continent, although it is one of the contributory causes to erosion of the soil. The native mind, of course, reasons that the old grass is too high and too coarse for cattle-food, and by burning it the herds can enjoy the juicy, green shoots which spring rapidly from the soil.

Here and there, one comes on considerable native towns, some of which house thousands of inhabitants. Here, too, live the Shilluks, a tribe whose members resemble the Egyptian type as seen in the royal tombs, with an aquiline nose separated from the forehead by a deeper bridge than in any other negro people, with fine teeth and small feet. Their appearance is often almost repulsive, however, for they disfigure their bodies by rubbing dung and ashes into their skins and hair, and then put on a further coat of artificial red which contrasts with the grey of the ash.

And it is now that we begin to see the camel, the ageless mode of transport in the desert.

The river broadens, and there is an ever-increasing number of boats on the river. The conquest of the desert-wastes by man also becomes increasingly apparent, for thousands of bales of cotton lie beside the steamer-halts waiting to be

taken away. Suddenly, a great railway bridge spans the river at Kosti—the first of its kind since the birth of the Nile at Jinja, two thousand miles away. Kosti, indeed, heralds “civilization” in the form of corrugated iron buildings, motor lorries, policemen, and traders of several nationalities, including Syrians, Greeks, Arabs, and Indians. This town is insufferably hot, and when I was there a violent sandstorm blew, making it feel as though I was in an earthly hell. These sandstorms, though, are frequent at certain times of the year throughout the Sudan, and all one can do is to wait for the evenings when relief comes.

Onward again flows the Nile, with its waters becoming wider and wider, until at last, on the outskirts of Khartoum, the greatest of all the river’s tributaries, and almost an equal partner, makes junction—the Blue Nile unites with the White Nile. “Thus they create in a brotherly embrace one of the loveliest spots in the world. Thus they unite their fates, and, by their bond, lay the foundation of the fate of Egypt.”

Khartoum, to me, has always been a welcome sight. It is certainly fascinating to wander through “Darkest Africa”, but it is also delectable to return from the wilds to a civilized town. Strangely enough, my most vivid memory of the capital of the Sudan is of a drink: an ice-cold drink. It happened that I had, in the first year of the air service between South Africa and London, been on a plane which, because of engine trouble, was forced to descend in the Sudd—of all places! I will not describe here the horrors of the twenty hours the passengers and crew had to spend in this most pestilential and mosquito-ridden of all the world’s swamps, with a few dozen crocodiles nearby expectantly awaiting a meal. Suffice it to say, we were rescued, taken off by another plane, and finally arrived at Khartoum in a state of collapse.

And it was that first, glorious drink in the Grand Hotel there which I will remember to the end of my days. It was truly “nectar of the gods”.

Standing on the banks of the Nile, Khartoum is 1,000 miles south of Cairo. It has attractive gardens, spacious streets, grass bordered avenues and stately trees. It is

difficult indeed to realize that it was only about seventy years ago that this modern town was the scene of that terrible disaster when General Gordon was killed by the mad men of the Mahdi. To-day it is the capital of the greatest potential cotton land in the British Empire.¹

It is in Khartoum, too, that there is one of the world's most fascinating zoos. It contains only animals native to the Sudan: gazelles and lions, shoe-birds and egrets, cranes and dromedaries and hippopotami. Then, on the left bank of the Nile is the great native city of Omdurman, one of the largest in Africa, which stretches for some seven miles along the banks of the river. Its busy market-place and its native shops with highly skilled craftsmen working in silver, ivory, and leather offer much interest to visitors.

Before setting out on our river journey again, some brief information concerning the Blue Nile may well be of interest. This important river, like its brother the White Nile, rises in a lake—Lake Tana in Abyssinia. Here, at an altitude of 5,500 feet, the countryside is bleak and wild. From the lake the river wanders in a great half circle to the south before finding its final direction to the north. Almost at the start of its journey it tears a huge gorge for itself through the rock, while it whirls down headlong so rapidly that in fifty miles it falls 4,000 feet, yet from its genesis it brings with it in silt the elements of its later life-work, vital and productive from the beginning.

Surrounded by great mountains, the river for some five hundred miles flows through a ravine inaccessible to man, but a paradise in consequence for wild game. Here lions and leopards, crocodiles and hippopotami live fearlessly in their thousands, more unmolested by man than in any other part of Africa.

As the high lands gradually fall away, the gorge grows milder, and, after crossing the border into the Sudan, the Blue Nile finds itself flowing through the plains, quietened but still unnavigable. Not until Roseires, four hundred miles from its mouth is reached, is shipping possible. Further

¹ Strictly speaking the country is called the Anglo-Egyptian Sudan, and it is under joint British and Egyptian rule (condominium).

down, the river meets the great Sennar Dam, where the waters are gripped and regulated. For the rest of its course onward to Khartoum, the Blue Nile passes through a vast cotton-growing area and sees and hears on its left bank the railway carrying off the thousands of precious bales. This large irrigated plain which lies between the Blue and White Niles is called the "Gezira".

Because of the series of cataracts lying between Khartoum and the Egyptian border, close to Wadi Halfa, it is not possible to make the through journey by boat, although portions of the Nile in this long section are navigable. Also, because of the great bend it makes in the Nubian desert, the railway which follows the river's right bank for many miles deserts it at Abu Hamed, and from there makes a direct straight line across the desert, rejoining the Nile at Wadi Halfa.

Some distance north of Khartoum the Nile narrows down to seventy yards wide and, passing through a gorge, enters the sixth cataract, the highest of the river's cataracts. It is here, also, that the great S loop begins, with the river flowing for many miles in a variety of directions before turning north again. And it is here, too, that the bush-like country is left behind at the mouth of the Atbara River, the last tributary to join the Nile, and the real desert begins only to end close to the sea. It is, indeed, largely a land without life.

At each of the cataracts the physical conditions are very similar. There are dozens of islands of varying size, rapids large and small and rocks. The islands, constantly refreshed by the river waters, stand out in stark contrast to the naked grey rocks and the parched yellow sands. On its journey through the great loop, the valley of the Nile has just these three colours: green, grey, and yellow. Here and there are little cultivated strips of land, made rich with silt. Generally there is no population.

Beyond the sixth cataract there is, however, the town of Berber, close to the mouth of the Atbara. A century ago this was the biggest town on the Upper Nile, for it was an important market for ivory and ebony, for gold and slaves—especially for slaves. Now those days are gone and the place

sleeps, dark green in the yellow desert, with only a small number of inhabitants.

A few miles beyond Berber is the fifth cataract, where hundreds of islands strive in vain to check the river over a distance of more than six miles.

Further on again, beyond Abu Hamed, is the biggest island in the Nile, twenty miles long and three miles broad. And then come the wild fourth cataracts, formidably crowded with black rocks, through which the river bites its way. This is the most difficult part of all the Middle Nile, and only the most experienced of the natives can traverse it by boat.

On all the long journey we have made so far down the Nile, through mountains, swamps, and deserts, not a single memorial of the past has yet been encountered. But below the fourth cataract, a field of pyramids arises, with more than forty stone tombs of men who once were mighty. Others soon follow, eight or nine of them round the foot of a hill visible from far and wide at the southernmost point of the loop.

But for the barrier of the cataracts, invaders of the past would have been far more successful than they were. Even as it was, the Pharaohs, about 2000 B.C., once penetrated as far as the Blue Nile; and it is known that from 1900 to 1100 B.C. they ruled as far as the fourth cataract, and carried away gold and slaves.

As we continue our present journey, the memorials of the past grow more frequent. In the neighbourhood of Dongola, for instance, there was once a Christian church, for over wide stretches of the Middle Nile valley the cross ruled for more than six centuries. To it came the crusaders in coats of mail to pray for protection against the dangers of war in the desert. But, like other civilizations and religions, the edifice also has passed away, leaving only a derelict granite stone to record its existence.

Just below Dongola the Nile splits for twenty-two miles and surrounds the longest of all the islands in the Nile—Argo. Beyond it are the third cataracts. Here the river narrows and the desert softens and there are giant columns

erected long ago by the Pharaohs. This megalomania, this passion to be remembered for ever, even in the heart of the desert, is one of the most amazing riddles in the psychology of Egypt's royal rulers.

A thousand miles below Khartoum are the second cataracts, lying close to the southern Egyptian border. They are the most magnificent of them all, volcanic in structure, and giving the appearance of petrified hippos rising from the waters. When the Nile is low, three hundred and fifty of these rocks have been counted, and some of them are even inhabited by men living in clay huts.

And now we come to Wadi Halfa, set amid palm trees, a pleasant little town bustling with importance, for here is the terminus of the railway from Khartoum and here the navigation of the Nile by a regular service of steamers is resumed. Just beyond this desert outpost the flag of Egypt flies alone, and the great river seems to enter the land it has made great with assurance and majesty.

On crossing the Egyptian frontier, the Nile does not forthwith enter Egypt proper, for that only starts at Assouan, two hundred and twenty miles further on; and the barren intervening land is known as Lower Nubia. There is no railway across this desert strip and the only form of transportation is by river steamer, the journey taking about twenty hours.

The Nubians who live here are the poorest of the poor, and how they manage to subsist at all is a mystery. There is dreadful squalor. Each family cultivates an unfruitful small patch of ground adjoining the Nile, the age-old water-wheel providing the necessary irrigation. Their houses are built of mud bricks; flies abound, giving most of the inhabitants sore eyes, and the sightless ones are everywhere.

Forty miles below Wadi Halfa is the remarkable Temple of the Sun at Abu Simbel. The façade of this rock temple faces the rising sun across the Nile, so that the earliest rays penetrate to the inner sanctuary. On each side of the entrance are two colossi of Rameses II, the greatest of Egypt's rulers. There these images have stood for three thousand years, the greatest examples of self-idolization known in ancient

history. Between the legs of these statues are tiny figures of stone, representing the king's family—his mother, wife, and children.

Inside the temple there are wall-pictures which illustrate incidents in the life of Rameses, and there are more great statues of the king, thirty feet in height. Nowhere is the sun-god, to whom the temple is dedicated, allowed to overshadow in size the earthly ruler, and one feels that it is the giant king who is really the god.

At Shellal the boat journey concludes, while beyond is the great Assouan Dam. This key to the prosperity of Egypt impounds the waters of the Nile upstream, forming a great lake, one result being that the elaborate temple on the island of Philae is submerged for months every year. Only when the dam gates are open for irrigation between August and December is the mud-stained temple uncovered. How desolate, indeed, the goddess Isis must feel now with the slime of the Nile cloying about her, she who had formerly been honoured by emperors and kings and visited by tens of thousands of pilgrims every year.

The villain of the piece—the Assouan Dam—is, however, the saviour of Egypt. Made of granite, this mile-and-a-quarter dam, ramparted like a castle wall and punctuated by 180 sluice gates, rules the river that rules Egypt. It may be Egypt's chief antiquity several thousand years hence, for even the Pharaohs would be impressed by its majesty and size.

Designed by Sir James Willcocks, a British civil engineer, the Assouan Dam was built fifty years ago at a cost of over four million pounds. But when the dam was finished, it proved to be too low: the whole of Egypt was crying out for more water; and so, in 1912, and again in 1933, the dam was raised by a total of fifty feet, its original height being one hundred and twenty.

From Assouan the Nile flows in a straight run to Edfu, where there is the finest preserved temple on the Nile. Built a thousand years later than Thebes, by Greek hands and half in Greek form, in no way classically Egyptian, it is none the less the loveliest of Egyptian temples to-day.

Another twenty-five miles on is Luxor, the most famous

and interesting place in all the Nile valley, except possibly for Cairo. Here the valley is ten miles across. Its historical interest is unrivalled. There is no other site of a great ancient city which takes you so far and so clearly back into the past. All the great monuments of Thebes, all its chief tombs and temples, are older than the time of Moses; they bear in clearly readable cartouches on their sculptured walls the names of the great conquering kings of the 18th and 19th dynasties—Thotmes III, Amenhotep III, Seti I, and Rameses II—who carried the victorious arms of Egypt to Ethiopia, Libya, the Euphrates and the Orontes; the great wall-faces forming a picture-gallery of their exploits. More modern names on the temple-walls of Thebes are those of Shisak, who vanquished Rehoboam, and Tirhakah, the contemporary of Hezekiah. The earliest name yet found at Thebes is that of Usertasen, a king of the 12th dynasty, who lived some forty-three centuries ago; the latest considerable additions were made by the Ptolemies, and the record finally closes with a cartouche which gives the hieroglyphic name of the Emperor Tiberius. But the monumental history of Thebes has practically ended before that of ancient Rome begins.

Difficult as it is to realize the antiquity of these monuments, in many of which the chiselling is as sharp and the colouring as brilliant as if they had been executed only yesterday, it is still more difficult by any description to give an impression of their vastness. The temples and tombs, including that of Tutankhamen, are scattered over a space of many square miles; single ruins cover an area of several acres; thousands of square yards of wall contain only the pictured story of a single campaign. For splendour and magnitude the group of temples at Karnak, about two miles from Luxor, forms the most magnificent ruin in the world.

The sunsets, too, on the Nile, possibly the finest in the world, are unique in character. This is probably due to the excessive dryness of the atmosphere, and to the haze of impalpable dust arising from the fine mud deposited by the inundation. As the sun descends, it leaves a pathway of glowing gold reflected from the smooth surface of the Nile.

Any faint streaks of cloud in the west shine out as the tenderest and most translucent bars of rose; a lurid reflection of the sunset lights up the eastern sky; then half an hour after sunset a great dome of glow arises in the west, lemon, changing into the deepest orange, and slowly dying away into a crimson fringe on the horizon—the glassy mirror of the Nile gleaming like molten metal; and then as the last hues of sunset fade, the zodiacal light, a huge milky cone, shoots up into the sky.

On moonless nights the stars shine out with a brilliancy unknown in our misty northern latitudes. About three in the morning the strange marvel of the Southern Cross rises for an hour or two, the lowest star of the four appearing through a fortunate depression in the chain of hills. When the moon is nearly full, the mystery of the dark recesses of ancient temple ruins is enhanced by the brilliant illumination of the thickly clustered columns. The sight of the temples at Karnak under such a moon is one that I certainly can never forget.

Although Luxor must be regarded as the climax of our journey down the Nile, yet there is much of interest still to be found in the rest of the course of the river to the Mediterranean—a distance of over six hundred miles. There are more glorious monuments of the past to be seen, those at Abydos, Beni Hasan esh Shuruq, and the various great pyramids and the enigma of the Sphinx, being outstanding. There is the teeming life and the intense cultivation to be found all along the river banks. There are the two great cities of Cairo and Alexandria. And there is at our journey's end the delta, sometimes called the biggest island of the Nile, for it is bounded on two sides by two branches of the river, with the sea on its third side.

According to the latest figures of research this delta has been in existence for 13,875 years. In its history it has provided a home for many strange tribes, gentle shepherds and brigands. Its swamp-lands provided natural retreats for the latter. Even to-day, although close to Cairo, there are lawless and unmanageable tribes on distant islands at the eastern fringe of the delta, sailing in dug-outs with high, triangular

sails, and bailing the water out of their boats with a pelican's bill.

I consider myself indeed fortunate that I was able, when such travel could be made without much difficulty, to have carried out a complete journey down the Nile, from source to mouth. From Luxor I chose a felucca (a Nile sailing-boat) for the trip, for, having the time, it is the ideal way of seeing the real Egypt in its villages. These the steamer disdainfully passes by.

It is in these back eddies of Egyptian life, seldom visited by foreigners, that one finds the Egypt of the Pharaohs, almost untouched by the outside world, one of the most ancient civilizations still persevering upon the face of the globe, and very much alive. But I was able to see and admire the "inarticulate fellah"—those strange people who comprise four-fifths of all Egypt's population. Isolated for ages, they have developed and maintained distinct physical and racial characteristics. When you see the modern fellah at work with mallet and chisel, or scratching the sun-baked plain with his crude hoe, or dipping his clumsy fish-net into the Nile, he is, in face and physique, startlingly like the pictured Egyptian of the Pharaohs' times.

Since prehistoric days this race, a vast farming colony, has lived along the Nile and in that great delta which ages of floods have built out into the Mediterranean. Though the Persian conquest, about 521 B.C., ended the period of native rule, the mental and physical aspects of the modern fellah are, so far as we can judge, exactly like those of his early ancestor who sweated under the Pharaohs—and this notwithstanding centuries of submission to Persian, Macedonian, Roman, Arab, Mameluke, Turk, and Briton.

Culturally the fellah is now an Arab; he speaks a form of Arabic and turns to Mecca in his prayers. Otherwise he is the same silent, melancholy, inscrutable person who doggedly dragged granite blocks for hundreds of miles to build the pyramids, who blindly bent to the big sweeps of the early Egyptian galleys, or who conceived and began to dig the Suez Canal centuries before de Lesseps was born.

Hard work is his lot from the cradle to the grave. Riding

through the great Delta region, you will see a boy or girl of eight leading the ox in the fields, while the father holds the rude plough. The children herd goats, too, and aid in cotton-picking.

In the outside world, people think mainly of politics and cotton when Egypt's affairs are mentioned. Travellers will also link the name Egypt with the Sphinx, the Pyramids, Luxor, and the land of the whirling dervish, the land of the mummy and the scarab, a desert realm of camels and white-robed sheiks, where long ago the troubles of the Children of Israel began.

And yet—once you get to know the real Egypt, the real Sudan, and have come under the spell of the Nile—it may well be that more than anything else you will find it is the daily life of the peoples, of many tribes, who live on its banks, that provides its most haunting interest and appeal.

Chapter Two

THE ZAMBEZI

THROUGH DARKEST AFRICA

Fourth in size among African rivers is the Zambezi, and it is the most important river on the east coast of this continent. This great river goes back into ancient history, and has appeared on maps of Africa from the earliest days. The first written records of its wonders, and its course from the Victoria Falls and upwards, were made by David Livingstone about ninety years ago. The old maps, drawn before his time, show the Zambezi as a big river with cataracts and rapids, and one map, which can be seen in the David Livingstone Memorial Museum at Livingstone, frankly brings it to a full stop at a point below the Victoria Falls and naively states that "It is not known where the Couama has its rise." Even its name was not certain, for it was alternatively called the Couama, the Leeambye, or the Zambezi as it is now known.

The early Portuguese settlers in south-east Africa gave their attention to the exploration of the Zambezi. Even in the oldest records we find detailed descriptions of the first five hundred miles of river, inland from the coast, and in maps dated 1662 we find a not inaccurate general idea of its whole course.

This course flows in every direction of the compass. After its source the river flows north and turns south after crossing the Northern Rhodesia boundary into Portuguese West Africa. It continues southwards for hundreds of miles, re-entering Northern Rhodesia through Barotseland. At the Katima Mulilo Rapids on the southern border it bears east until it reaches the Victoria Falls and then, in the great gorges below the Falls, rushes dizzily south, west and east by turns until it again opens out. For about one hundred

miles it flows eastwards, and then north-east until it reaches the Luangwa River confluence. From this point it resumes its eastward run and then finally goes to the south-east to reach the Indian Ocean north of Beira in Portuguese East Africa.

Its source is in the Kalene Hills in the extreme north-west corner of Northern Rhodesia, eight hundred miles above the Victoria Falls, and in that distance grows from a mere brook into a vast sheet of water over a mile wide at the lip of the Falls. Here it abruptly contracts to a mere hundred yards wide in the gorges, whereas, about two hundred miles up river it spreads out during the rains to a width of twenty to thirty miles across the Barotse Plain. There is, in fact, no other river in the world which undergoes so many unexpected changes and presents, in so doing, such amazing spectacles as the Zambezi.

The scenery along the route of the Zambezi is varied, but is typical for the most part of sub-tropical Africa; it is only when it approaches its mouth that it passes through a tropical zone. Thus forested country and open veldt comprise most of the landscape—a rather featureless landscape.

The Zambezi empties into the sea through a broad delta. The main mouths, however, are so impeded by sand bars that navigation is directed through just one of its channels. Into the river flow a number of tributaries, the most important one being the Shire, bearing from the north the surplus waters of Lake Nyasa. It enters the Zambezi about one hundred miles from its mouth.

Along its whole course the Zambezi has only three small towns lying beside its banks: Livingstone in Northern Rhodesia, Tete and Sena in Portuguese East Africa (or Mozambique as it is often termed). The river is also spanned by three bridges: one at the Victoria Falls, which is the only rail link between Northern and Southern Rhodesia; a road bridge, known as the "Otto Beit Bridge", some distance further downstream and providing a short cut between Salisbury, capital of Southern Rhodesia, and Lusaka, capital of Northern Rhodesia; and the great railway bridge, one of the longest in the world, crossing the Zambezi not far from

its mouth and linking the port of Beira with Blantyre in Nyasaland.

While considerable stretches of the Zambezi are, or could fairly easily be made navigable, in actual practice river transportation is restricted to the portion above the Victoria Falls into Barotseland, and is indeed its main link with the outside world except for an air service; and from Tete down to the sea. This leaves two blanks; the higher regions of the Zambezi which have seldom been visited except by explorers and wild-game hunters; and the long stretch between the Victoria Falls and Tete. About seventy miles of this latter section are unnavigable, the remainder has been traversed, but the lack of population along its banks makes even the proposition of a regular river service not a feasible one at present.

The outstanding physical feature of the Zambezi is the Victoria Falls, admitted to be one of the finest waterfalls in the world. Later in this chapter I give a detailed account of them. For, I am now going to take you on a journey along the river, from Barotseland right down to the sea, a considerable part of which I have covered myself during a long residence in the Rhodesias.

* * *

The first leg of this trip saw its genesis at a small trading post in remote and little-known Barotseland, where I chanced at the time to be staying with a trader. When he mentioned that he had a barge-load of meal to send to Mongu, the administrative centre, I seized the opportunity of making the hundred and fifty mile journey.

It was a brilliant, cloudless morning when we pushed off from the bank, the paddlers dipping their paddles with a short, choppy motion, lengthening their strokes as the barge gained momentum, and soon we were gliding along at a steady two to three miles an hour.

As the paddlers warmed to their work, they broke into song, soon developing into a wild chant. This singing helped them maintain their paddling for long periods.

An hour after starting we came to the first rapids, and

here we bumped excitedly along, until we became firmly wedged on a hidden boulder. Overboard went the crew, to strain and heave, waist-deep in the river, until the barge at last slid off into deep water.

Almost before the crew had time to scramble back on board, the swift current had seized the barge, hurrying it broadside on to where the waters tumbled over a ledge, with a two-foot fall. I felt most alarmed at the thought of our solid weight of four tons getting such a bump, but the paddlers laboured furiously and managed, just in time, to divert the bow of the boat into a less abrupt channel to the left of the falls, and so, with only a slight lurch, we were floating in the safe reaches below.

At midday a halt was made for food, and then just before dusk we made camp for the night, our first day's run being twenty miles. While the natives were preparing my tent and meal, the headman of a nearby village came to pay his respects, kneeling down and clapping his hands, at the same time exclaiming, "Shangwel Shangwel" ("Greetings"). His wife brought me half a dozen eggs, which I paid for with a handful of salt.

There are few greater joys in life than to camp out on the African veldt in the dry season. Nowhere else in the world do the stars in the heavens seem so bright or so abundant. There is the sound of drums and song coming from a native village, the unceasing chirp of crickets, and the monotonous whirring note of the nightjar. Perhaps, too, there are the roars of lions in the distance. These nostalgic memories often make me long to go back to these wide, open spaces.

The landscape in Barotseland is not exciting. For miles the banks are fringed with tall palms, while bushes and reed beds blend with the deep blue of the wind-ruffled water. Beyond the river banks there is low-lying plain with blue hills bordering it in all directions. It is fertile land, though, and there are native kraals in plenty, herds of fat cattle, crops of all kinds. There are practically no wild animals, for there is no cover for them on this almost treeless plain. In summer it is flooded by the heavy rains and becomes a vast lake, the natives retiring to the neighbouring hills with all their

belongings. The Barotse are a mixed race, a large number of small tribes now united under one paramount chief, who has considerable powers, for his country is a protectorate and not a colony.

For close on a week this water-journey continued, but it never became monotonous. There were constant diversions. Sometimes we encountered another vessel and then the two crews would indulge in impromptu races. There was the ever-changing native life on the banks, and once we even encountered another white man—a missionary—travelling by barge to visit the riverside villages. Sometimes we passed little fishing camps: a wisp of smoke, a few grass shelters, and nets hung out to dry. Fish are abundant in these waters, and form an important item of diet, not only for the natives, but also for the many aquatic birds which throng the waterside.

Spur-winged geese and several varieties of duck abound. Storks and herons are present in infinite variety, from the graceful white egret (great white herons) to the grotesque, frock-coated marabou. Rows of pelicans squat somnolently on the sand spits, while ornate crowned cranes pose like birds in a Japanese print. Dainty little plovers run to and fro at the edge of the water, or fly up with plaintive cries when anyone approaches. There are several varieties of kingfishers and, most gorgeously coloured of all, scarlet and blue bee-eaters, whose tunnels honeycomb certain portions of the bank. Overhead, kites and vultures sail with matchless grace, and the clear, yelping cry of the brown and white fish eagle is a familiar sound.

There is other, more sinister life. Crocodiles, greenish-brown, log-like objects, become animate when approached and slide cunningly into the water, for they know that every man's hand is raised against them.

On the fifth evening of my trip, from my camp I could see to the south the grey hump of Mongu hill rising up from the plain, a dark line of trees marking the site of Lealui, the residence of the paramount chief. In every direction here, villages of round, thatched huts, clustered about with gum-trees, dot the plain. Then, over the southern horizon there

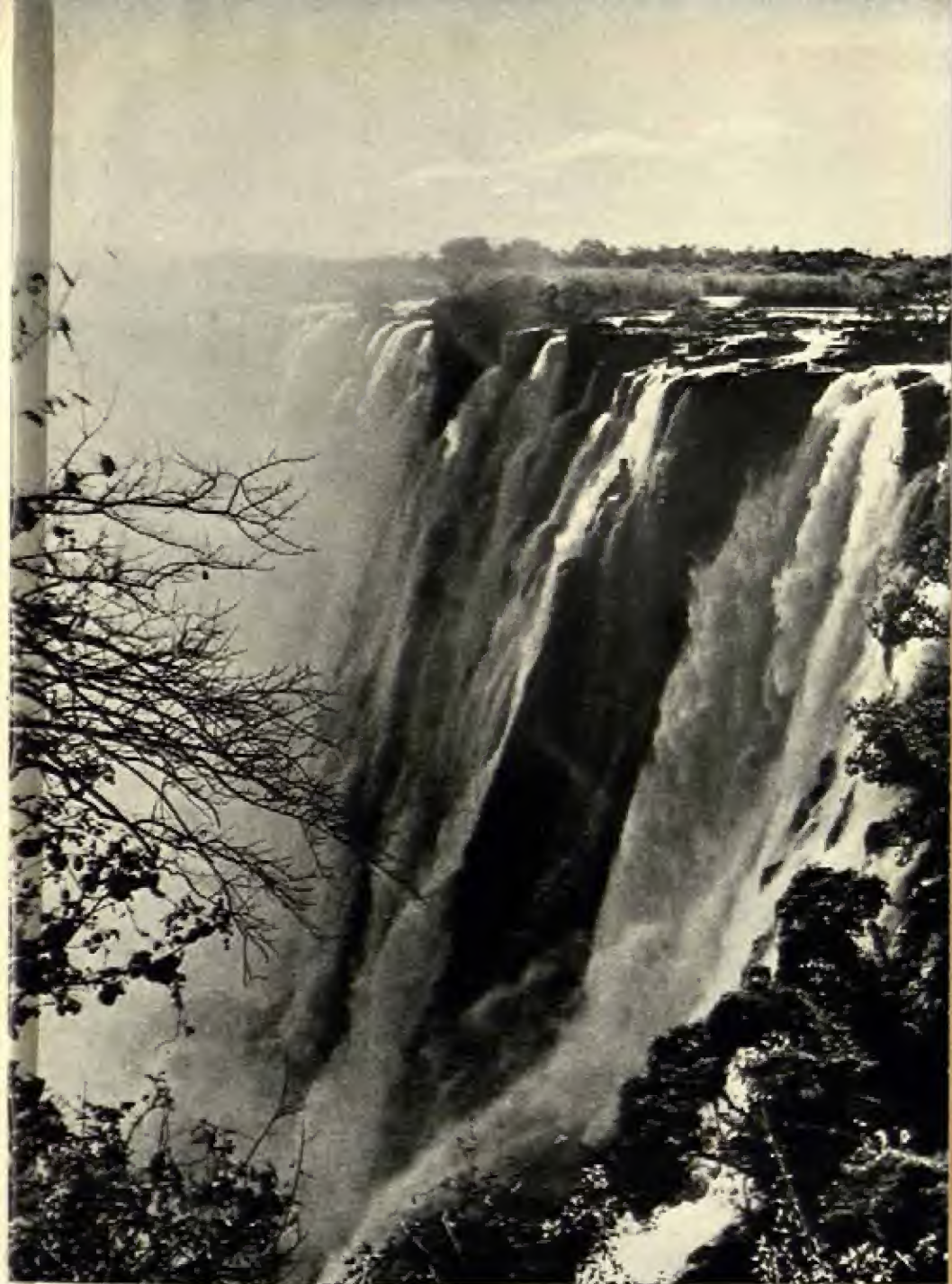
appeared a low cloud like a smear of smoke trailing far out across the plain. It swept onwards, obscuring Mongu with a reddish veil. Nearer still it came; a soft rustling filled the air; and at last the red mist resolved itself into a myriad of scintillating points—a vast swarm of locusts, seeking what they could devour.

At Mongu, having handed over my barge-load of meal, I was again fortunate in getting accommodation in a boat leaving for Livingstone—a journey of close on five hundred miles. About sixty miles to the south of Mongu, at a spot called Senanga, the character of the countryside changes abruptly, and for the next two hundred miles or so it is broken country, with islands and rapids, woods and forests, very sparsely inhabited, and a great haunt of big game.

These rapids, which are occasionally small waterfalls, hinder speed, for it meant that when we came to them we had to unload our boat and have the cargo carried for a couple of miles along the bank; then the empty craft was brought through the intricate waters. Each of these rapids has its own native name, one particularly dangerous one that we passed being called "Lusu"—meaning "Death".

Some distance before reaching Sesheke, a trading and administrative centre, we came on the right bank to the Caprivi Strip, a long tongue of land connecting South-West Africa with the Zambezi. It takes its name from a former German chancellor, Count von Caprivi, who obtained it in 1890 during negotiations with the British. At that time, of course, South-West Africa was a German colony. What the purpose of this German acquisition was I do not know, for the land is hardly an asset to anybody, being largely uninhabitable swamp.

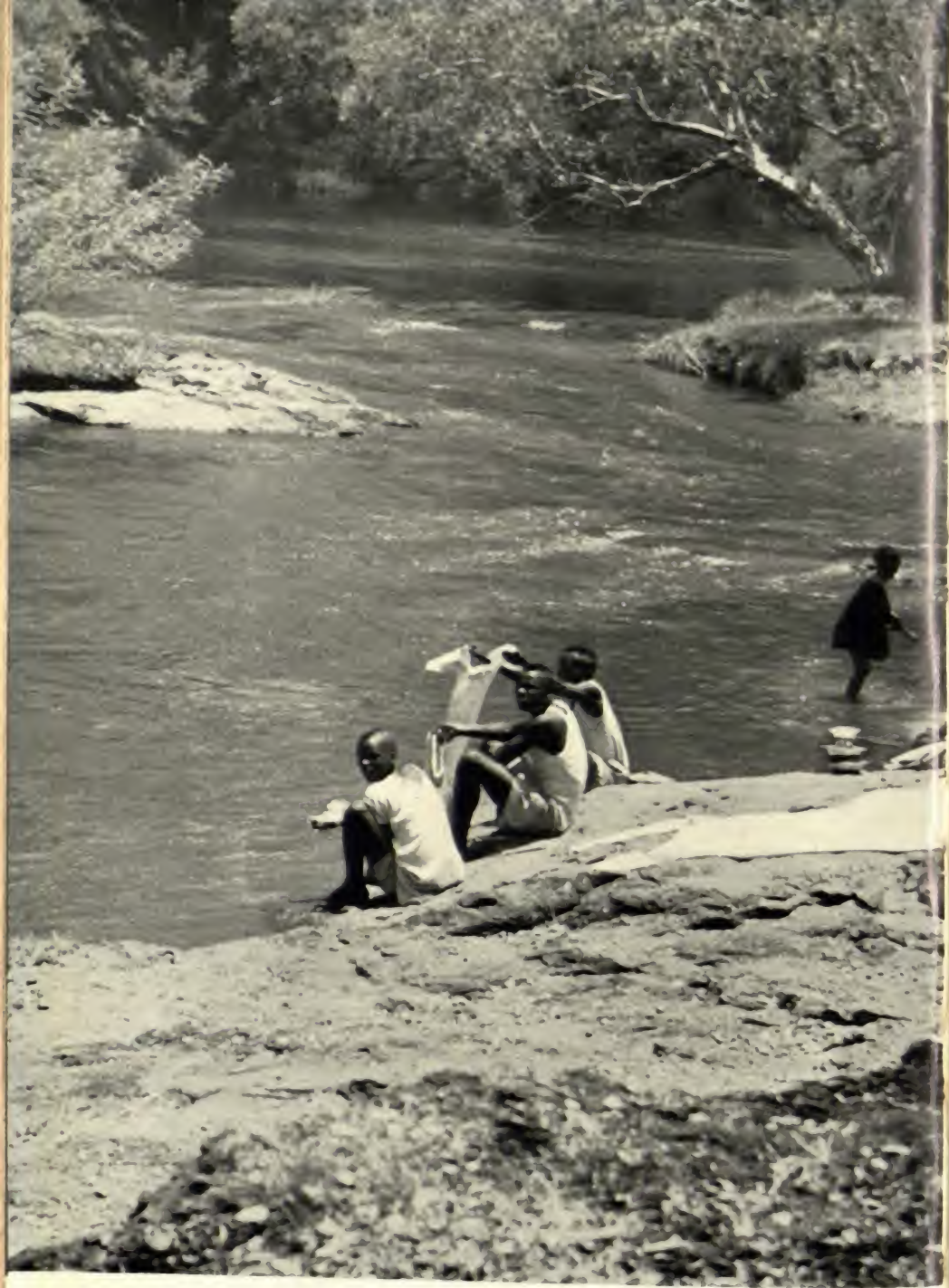
By now we were in swamp country and the river was running broad and deep. For many miles we saw no signs of human life—just a flat, swampy plain reaching as far as the eye could see. In the dry season these plains are covered with long reeds and grasses and make good feeding grounds for large herds of zebra, wildebeest (the gnu), lechwe, and other buck. About the river banks there are many birds: egrets, pelicans, flamingoes, wild duck and geese, marabou and



The Victoria Falls from the north bank



The Temple of Philae on the Nile, near the Assouan Dam



A peaceful stretch of the Zambezi above the Falls

ibis, besides many small species. Hippopotami roam the land at night feeding on the grass. During the day all one sees of them are their small snouts as they come out of the water to take in air for breathing. As far as human beings are concerned, however, the greatest pests of all are the mosquitoes which appear in clouds after dark.

Time loses count on a journey of this kind, and day succeeds day with a peculiar feeling of everlastingness. But in due course the land of the swamps came to an end and we entered most delightful country. The Zambezi by now had become a wide river, averaging about three-quarters of a mile wide, flowing between well wooded banks, and with many picturesque islands throughout the area. These islands are a tangle of great growth of grass, bush and climbing plants over-topped by large trees—including the tropical palm—most of them evergreen, so that even in the dry season these islands and the adjacent river banks form a picture of luxuriant vegetation. The surrounding country is park-like, with low hills; the open glades and tangle of shrubs and bushes in some profusion afford good feeding for buck; monkeys are frequently seen, and night gives plenty of evidence of prowling hunters such as leopards, jackals and wild cats.

The fishing is magnificent. Trolling the largest spoon-bait available fifty yards behind our boat, I was suddenly roused from my lethargy on one occasion by a bite which left me in no doubt as to its origin. It was no half-hearted nibble, but a bite like the kick of a mule. The reel screamed, and out shot thirty yards of line before it was possible to stop the initial rush; when finally checked, the tiger fish leapt three or four times clean out of the water, and the fight was on. After a fierce flurry, the fish took a rest—to contemplate its future moves!—and I was able to reel in a few yards; then the fish became furious once more. There followed a fine tussle, while I wondered whether my weaving rod could stand up to such lashing strain; another rest came, however, and a few more yards of line reeled in, and so it went on till the fish was near our boat. It was then, when he saw it, that the fight started in earnest and that tiger fish became

sheer dynamite, for he was a seven-pounder when at last I achieved victory over him and had him weighed. Even a two- or three-pounder tiger fish is a real fighter.

Shooting at crocodiles provided good rifle practice, and then we had the constant hours spent in manipulating our boat over and around the rapids. When we were about twenty miles distant from the Victoria Falls we could see the cloud of spray showing in the sky, and soon after could hear the dull thundering of the waters. No other falls in the world have quite the same thrilling approach as these.

The first white man to visit the Victoria Falls, called by the natives "Mosioatunya" (the "smoke that sounds"), was David Livingstone, who arrived there in November 1855. He might have been preceded by a much lesser-known man—a remarkable hunter called James Chapman, who was actually in the neighbourhood two years before—but unfortunately his natives gave him no word about them. Chapman, not long after Livingstone's discovery, then made a journey to the falls, and although every visitor knows that it is impossible to do justice to this wonder of nature in print, yet I give here Chapman's description, for it is better, I think, than the much more frequently quoted one of Livingstone's.

We stood for some time lost in thought, contemplating the wonderful works of that Providence which could bring into combination, at one view, such a variety of the most stupendous and beautiful effects, inspiring at once terror, devotion, and delight, and bowing the feeble and oft unwilling mind to acknowledge and believe in Him who rules the heaven and the earth and creates all their wonders.

We lingered on the spot till the sun was long past its meridian; the deep gulf rolling up large, dense masses of spray, on which the sun at our back, shining full on it, reflects two, sometimes three lovely rainbows, spanning their brilliant arches, first in the depth of the chasm, but at length rising higher and higher, and forming a double archway across the gigantic walls of the fissure. Rainbows so bright, so vivid, are never seen in the skies. The lower one was too vivid, almost blinding to look upon. The colours in these rainbows are reversed, the upper one being blue, yellow, red, and the lower red, yellow, blue.

As the sun declined the rainbows ascended, until they reached

the clouds of spray above the horizon. One segment of the bows is cut off where the spray ends, but the other end is still rising higher and increasing in depth, and as you retreat a little it spans the whole river for fully a mile, imparting the most lovely colours to the spray clouds, which steal aloft like tongues of sulphur until lost to view by the downward course of the sun.

There are a thousand beauties to be seen here, which it is impossible to describe. My senses truly became overwhelmed with crowding sensations while gazing upon those wondrous works of God. The many streams of vapour flying fast upwards through the broad and vivid iris of the rainbows looked so like flames that I was for a moment mistaken. The stream pouring over the edge of the precipice tumbles like gigantic folds of snowy drapery, and the sudden curl of the water over the edge of the black-looking rock sparkles to the sun like a rope of diamonds. The view is always changing, yet ever recurring. Creep to the uppermost pinnacle over the outlet and peer into the chasm to right and left; here, large, heavy, fleecy masses chase one another down like phantoms chasing phantoms, and then dissolve into fine air before they are overtaken.

Wherever the large, broad masses fall, the height does not seem so stupendous as where the streams are smaller. The latter fall here in sparkling torrents; there in smaller rills like the tails of snow-white horses; here like silvery threads, forming sometimes a network against the black and sloping rocks; there leaping from shelf to shelf, they are dashed into successive tiers of sparkling jets, delightful to look upon. Nothing can be more delicately beautiful and pleasing to the eye than the milky streams, broken at the top by dividing rocks, pouring down in one unbroken flow of snowy whiteness from a height of three hundred feet. The river, from a breadth of a mile or more, is here narrowed to a width of thirty to fifty yards.

Of one thing I am sure: no visitor to the Victoria Falls has ever felt disappointed with them. There is, indeed, no more magnificent spectacle in the world than the view (spray permitting) of the Main Fall's half-mile sheet of water descending 360 feet into the narrow chasm below. The Main Fall sends over a greater volume of water, it thunders louder, and it shoots a higher cloud of spray into the sky than any other part of the falling Zambezi.

The extraordinary conformation of the Zambezi gorge

merits a brief description. Imagine a great wall of rock, extended in front of the falling river like a huge dam across its entire width, with its summit on the same level as the surface river, and pushed within 250 feet of the descending waters, shutting out, it is true, any general view of the mile-wide series of falls, but compensating by furnishing along its very edge a series of frontal and side views—close, intimate, and thrilling—of the various sections of the falls.

Never was there transformation more amazing than that here suffered by the Zambezi. The mile-wide, comparatively shallow, river is, in the twinkling of an eye, turned edgewise into a cleft in the earth's surface, to the bottom of which very few people have ever descended and then only when the waters are at their lowest. At most times it is, indeed, quite impossible to see far down into this vast abyss because of the immense clouds of constant spray and mist.

The waters, shocked and battered below, rush wildly around seeking escape from the cramping, imprisoning walls of the opposing precipices of basalt. They find an exit about three-quarters of the distance from the western to the eastern end of the chasm, where the raging waters force themselves through another deep crack in the earth's surface even narrower than the falls' canyon itself.

Down this narrow opening, at right angles to the falls' chasm, the Zambezi rushes in the form of rapids with tremendous power, and almost immediately dash full front against another precipice of basalt, and are thrown back on themselves in a furious, boiling whirlpool—called rather suitably "The Boiling Pot".

Thus diverted from its course, the raging torrent shoots off almost at right angles through another narrow gorge approximately parallel to the falls' chasm and nearly reversing its direction of flow in that chasm.

When the river is about on a level on this course with the west end of the falls' canyon it doubles back upon itself at an acute angle, and when almost on a level with the east end of the falls' chasm it repeats this zigzag process, with the result that the Zambezi's course through the falls' canyon and the three immediately succeeding gorges lays out a

great M, cut into the earth's crust 400 feet deep, plus the depth of the Zambezi's channel in the canyon. Actually, the river continues to flow through gorges for a distance, in a straight line, of more than fifty miles—probably ninety miles, taking the bends into account. But along all this distance the countryside is semi-arid, only becoming fresh and green during the rains.

To return, however, to the Victoria Falls (named after Queen Victoria) and particularly to the summit of the wall of rock facing them. This is crested with trees, ferns, and tropical undergrowth which, frequently and in places constantly bathed in spray rising from the falls' chasm, are appropriately called the Rain Forest.

At some points the Rain Forest creeps, with dripping vegetation and fallen tree trunks, to the very verge of the precipice. In other places wet and slippery rocks substitute themselves for vegetation at the edge of the chasm. A hard, well-made footpath traverses the forest, paralleling the falls' canyon and only a short distance from it, and frequent branches lead from this main footpath to those points at the edge of the precipice from which especially fine views may be obtained. For most of the way one may follow the precipice edge and disregard the path, if the wind and spray permit.

In any event, a visit to the Rain Forest means sopping wet feet and probably a drenching to the skin, in spite of waterproofs and umbrellas; but in some conditions of wind and spray no glimpse whatever of the falls can be had from many fine view-points.

There are many exciting and beautiful experiences to be had at the Falls: the descent to the edge of the "Boiling Pot", where one stands only a yard or two away from this veritable inferno of foaming, raging waters; a visit by canoe to Cataract Island on the very lip of the falls, where one can lie down on the edge, almost but not quite in the grip of the down-falling river; and the superb picture of the Victoria Falls during nights of full moon, when in the spray are produced a number of lovely lunar rainbows.

There are four seasonal changes in the Victoria Falls, and

to see them properly one should visit them at four different times to get a complete picture of the amazing spectacle. The four annual changes are—at the flood, when the Zambezi is subsiding, the dry season, and when the river is rising for the next flood.

The flood waters come down during April, May, and June, and the Victoria Falls are then at their best, except that the dazzlingly white mass of spray fills the chasm and towers hundreds of feet into the blue sky, and veils the splendour of the falls' to some degree. From July to September the waters diminish, and as they do so fresh views open up into the great gorge. During October, November, and December there is an uninterrupted view throughout the whole mile-and-a-quarter length of the main gorge and its conformation can be clearly seen. After December the floods from the Barotse Plains begin to come down and the river runs red with the sand, and it is an astonishing sight to see the brown waters turn into a snowy foam and spray as the river breaks over the lip of the falls'. From then on, until the full flood, the water gradually clears until at the peak period the Zambezi is again a clear grass green.

I doubt whether half a dozen men have made the river journey for the next few hundred miles of the Zambezi. Dr. Livingstone was probably the first—we know too little about what the early Portuguese explorers accomplished in this respect—for in 1855 he descended the Zambezi from Barotseland to its mouth; but part of the journey was performed overland. Livingstone took observations, however, which enabled cartographers to lay down the course of the river more or less accurately. He also collected valuable information respecting the surrounding country.

After emerging from the long series of gorges which I have previously mentioned, the Zambezi runs for the next fifty miles through hilly country, the river itself being sometimes obstructed by rapids and also having a strong current. Then comes a long stretch of 160 miles with the Zambezi flowing in a broad steady stream, averaging half a mile in width, though a fairly low-lying country. Despite an occasional rapid the entire distance is navigable and is used quite

freely by the fairly dense local population: the Batonga natives. The scenery is beautiful, the soil fertile, the climate hot. The chief danger here is the voracious and daring Zambezi crocodile who is constantly seizing human beings and domestic animals.

At the junction of the Sanyati river the Zambezi narrows into a notorious gorge, high hills guarding it on either side. There are many obstructions in the river's course, whirlpools are fairly frequent, and navigation difficult. At one place known as the Kariba Gorge, where the river averages 300 yards in width, and hills on either side rise to about 2,000 feet, it is planned to erect a great dam and create one of the world's largest hydro-electric schemes. This harnessing of the waters of the Zambezi might have almost revolutionary consequences in the opening up and development of large areas of the two Rhodesias.

Not far from the Kariba Gorge, the great Kafue river joins the Zambezi, and the river, ever increasing in volume, flows on through this little known part of Africa, sometimes encountering gorges and rapids, but for the most part a fairly placid, wide stream, until it reaches the mouth of the Loangwa river, which comes down from the north. On the eastern bank of the Loangwa is the old Portuguese settlement of Zumbo. It was founded by the Portuguese in the seventeenth century, and was at one time a settlement of importance. It is now completely decayed and ruined, and has very few inhabitants.

The river here is nearly a mile wide and by sandbanks split into various channels, making it difficult for navigation without a skilled pilot. Several hundred miles separate Zumbo from Tete, the next settlement of any size on the river. The most important feature of this section is the Kebrabassa rapids. Here the Zambezi becomes confined to a very narrow channel—about one hundred yards wide in the dry season, but of considerable depth. There is an extremely fast current and the channel zigzags, the conditions in every way being the same as those of the Victoria Falls gorge.

It was in one of these rapids that Dr. Livingstone lost a lot of his baggage and nearly one of his companions, thus

forcing him to abandon the exploration of the Kebrabassa gorge. It has since then been traversed by a couple of explorers some years ago. They faced incredible difficulties, not least being the heat of the sun, so intense, in fact, that at midday the naked black rocks became so heated that they blistered their hands at the least touch. In one place they found the mighty Zambezi to be only twenty-five yards broad, so the depth must have been enormous. It took them five days to travel through this gorge, during which they encountered ten cataracts and no less than thirty rapids, all of them dangerous, and some of them impossible to get through, therefore necessitating the dragging of their boat up the mountain side and launching it again below the cataract. Death constantly faced them; they were attacked by crocodiles; their locally engaged carriers deserted, and for three days, having run out of supplies, they went without food. But they got through at last and came to Tete.

Having now arrived back in "civilization", I will conclude this chapter with a short account of a steamer trip that I made from Tete down to the mouth of the Zambezi.

Tete has been a Portuguese settlement for about four hundred years, and for all this period its inhabitants have been cursing it, for the place has the reputation of being one of the hottest spots in all Africa. It is not unusual there for the shade temperature to mount to 120 degrees—and it is a damp heat which makes it much worse.

The most welcome thing I found in this back-of-beyond outpost was ice-cold Danish beer. True, it cost me about 8s. a bottle—but it was well worth it! One amazing sight in this small town was a traffic-light in operation. Considering that about one car an hour passed this road junction, it struck me rather as a gesture of progress rather than of necessity.

From Tete to Chinde at the mouth of the Zambezi is close on six hundred miles. The scenery is generally monotonous, but, here and there, one comes on the ruins of old Portuguese forts lying alongside the banks of the river.

It was a strange-looking steamer on which I travelled—an old-fashioned, stern-wheel paddle-boat, having the

impressive name of *Empress*. Though on a smaller scale, it was rather similar to the Mississippi boats. Eighty feet long, with a beam of twenty feet, flat-bottomed and drawing little water, this ancient vessel had three decks, and a vertical smoke funnel.

There are a dozen of these craft plying on the lower Zambezi, manned by European skippers and native crews. Engines, crew and second-class passengers are carried in the lower of the ship's decks, and the conditions there are primitive. The saloon, captain's quarters and first-class cabins are on the 'tween deck. I can best describe its environment as being old-fashioned. Then, high on the top deck, under an awning, is the wheel and conning station. These vessels are wood-burners and consume great quantities of fuel, supplies having to be replenished frequently *en route* at special ports of call.

This section of the Zambezi is difficult to navigate, and an authorized pilot has to undergo at least five years of training before getting his licence. The captain of the *Empress* told me that he had been on the river for twenty-five years, and it was clear that he knew it in all its varying moods.

Fellow-travellers in the first-class were four Portuguese men, all old hands in the country. We spent most of the daylight hours between meals trying to keep cool. We dozed and we shot at crocodiles to relieve the tedium. Altogether we must have killed over fifty of these pestilential brutes. It requires an accurate spine shot near the neck to be fatal.

At some coal-mines not far from Tete we took in tow some laden barges destined for Nyasaland. It was quite a job for the boat to make sufficient speed in order to keep ahead of her tow, for the current here is rapid.

On the second day of the journey we made the passage of the Lupata Gorge. The Zambezi at its entrance is about a mile wide. Far ahead high hills seemed to block our course, but, with the aid of binoculars, I saw a narrow cleft. As we proceeded the banks closed in, the current quickened its pace and we were in turbulent waters. The previous silence of the river had gone; in its place, ahead, came a dull but ominous roar of waters.

The river narrowed to less than three hundred yards, while the scenery reminded me of the gorges on the Yangtze river in China. Almost sheer rock walls rose above our heads, three to four hundred feet in height. The rock formation is blackish-grey with relieving patches of red and yellow. Supreme magnificence, and for close on forty miles.

Suddenly this exciting trip was over, and we emerged once more on to the broad, silent, and placid river. The countryside was again flat, monotonous, with hills in the far distance. By sunset we reached Donna Anna, and I had completed the first stage of the journey to the coast.

It is at Donna Anna that the Trans-Zambezia Railway crosses the river by its great bridge, and it is from here that a branch line is slowly being constructed to link with Tete. When it is completed the days of steamer traffic will be over.

I now left the *Empress* and embarked on a smaller steamer of the Sena Sugar Estates, one of the biggest plantation companies in Mozambique. The Zambezi is now of great size, for it is reinforced by the waters of the Shire river. We travelled on, the land becoming flatter and flatter as we neared the coast, with vast swamps bordering the banks. Sometimes we seemed even to be travelling on a great lake. This part of Africa is most malarial.

Floods in the delta bring down masses of drifting vegetation, thus often dislocating traffic. The sudd mounts up against the piles and buttresses of the great railway bridge across the river until it forms a dam. Then disaster occurs, and on more than one occasion all traffic to Nyasaland has been interrupted.

For four days I sailed down the river from Tete to Chinde, and all I need say about the latter place is that my one aim there was to get out of its desolation as quickly as possible. This meant taking passage on an insect-infested dhow sailing for Beira, but that is another story.

Chapter Three

THE YANGTZE KIANG

CHINA'S LIFE LINE

The Yangtze is a river of many names. The one just mentioned is that by which it is known throughout its length to Europeans. Among the Chinese, however, this term is applied only to the last three or four hundred miles where it flows through a region known in ancient times as "Yang". The ordinary official name for the river is Ch'ang Kiang or Ta Chiang. This means the "Great River". Then, in the upper reaches, each section has its local name. Nashi tribesmen in the interior give it, for instance, the poetical nomenclature of the "River of Golden Sand". Further down it is known as the Paishui Kiang, and in Szechwan, below its junction with the Min, it is called the Min-kiang.

Cutting China literally in two, the Yangtze, flowing eastward from the chaotic mountain mass of Tibet, is the lifeline of eight provinces, the only outlet to the sea for some sixteen of China's largest cities. From Shanghai near the river's mouth to Chungking 1,400 miles upstream, these cities are the focal points of an area far larger and more thickly populated than the Danube basin. Two hundred million people, roughly a tenth of the human race, live within this basin—living mostly on intensively cultivated farms, or rather gardens, for in many districts there is an agricultural population of 2,500 persons to the square mile. Indeed, throughout the Yangtze plain the population averages 900 persons per square mile, three-quarters of them farmers.

To the Chinese the Yangtze is more than a river: it is part parent, part deity. Through the heart of China it flows, draining lakes and depositing its silt, until finally it enters the Eastern Sea through the province of Kiang-Su. Fifty miles from the coast, and as far south as the Chusan

Archipelago, the waters of the ocean retain the rich dark brown of Yangtze valley mud.

From the earliest times the river has been the main artery of trade and the centre of the country's wealth. It is a commercial highway of supreme importance, and despite the increasing competition of modern means of communication it maintains its predominance as the collecting and distributing centre for half the trade of China.

The drainage area of the main river and its tributaries is computed at varying figures, ranging from one and three-quarter to three-quarter of a million square miles. Some of its tributaries are great commercial streams themselves. This is especially true of its chief affluent, the Han, 1,300 miles in length. It joins the Yangtze at Hankow, and has an enormous junk traffic. Small craft can get within one hundred miles of its source in the Ta-pa-ling mountains of Shensi and it is the main artery of trade with the north-west of China. It is no exaggeration to state, therefore, that no other comparable area so vitally affects so many people, thus making the Yangtze the most important river in the world.

When Marco Polo, the medieval traveller, first saw this magnificent waterway on reaching the province of Szechwan and its ancient capital of Cheng-tu, he was so impressed that he spoke of it as flowing "into the Ocean Sea, at a distance of some 80 or 100 days' journey. . . . So big is the river, that you would rather think it is a sea than a river." On one occasion, at the city of Singui, he observed "no less than fifteen thousand vessels".

Centuries ago the Chinese endeavoured to link by waterway from north to south their two great rivers, the Yangtze and the Hwang Ho. This 1,200-mile-long project, one of the marvels of engineering skill in antiquity, is known as the Grand Canal. Many of its sections were excavated as far back as 485 B.C. Marco Polo described it as "a wide and deep canal which the Great Khan has caused to be dug in order that vessels can pass from one great river to the other."

The Grand Canal was crossed by many bridges, a considerable number of which had those graceful arches so typical of Chinese architecture. Its waterway was filled with

shipping; but to-day much of the channel has silted up, the retaining walls collapsed, the beautiful bridges in ruins, while the districts through which it passed have suffered severely from both foreign and civil wars.

Although the Yangtze has never been so wantonly destructive as the Hwang Ho, flood control remains a constant problem. Some idea of the magnitude of the task can be judged from the fact that the river discharges forty-six million cubic feet of water per minute into the Yellow Sea. It also carries in suspension a vast amount of silt, which it deposits in the same sea at an estimated rate of six and a half thousand million cubic feet per annum. At the mouth of the river its stream is between thirty and forty miles wide.

So enormous is the suspended matter that the river brings down from the Tibetan highlands that from time immemorial the Chinese have had to raise its embankments until, in places, it has become a great aqueduct. In normal years the level of the river varies to an extent of forty feet.

In the past some of the most catastrophic floods in history have overwhelmed the Yangtze Valley, not including those deliberately brought about during the past war with the Japanese when the dykes were breached as a means of defending the countryside. As a matter of fact, floods are a normal occurrence, and within limits they serve the same beneficent purpose as do the flood waters of the Nile.

Camping on the tops of the dykes in time of high water is a frequent experience for the peasants, who are well prepared for it. They desert their mud huts and take all their movable possessions to places of temporary refuge. When the waters subside their holdings are easily located by trees or other known landmarks and the huts are quickly reconstructed. The thick deposit of silt is soon made ready for the sowing of the seed. So the cycle of flood and planting continues endlessly.

If the dykes fulfil their function, the floods can be kept under comparative control, the sluice gates letting in only so much water as is required. Unfortunately this is not always possible and an appalling disaster occurred in 1931, resulting in heavy loss of life (the exact total was never

known), tens of millions being rendered homeless. The centre of the valley became a vast lake larger in area than the whole of England and Wales. The melting snows of Tibet and the summer monsoon may cause the river to rise in danger years from sixty to ninety feet.

After that tragedy the University of Nanking carried out a survey of the valley and it was discovered that half a year's rainfall had been received in a month. Experts were called in to devise scientific methods for controlling the country's unruly rivers, and a commission of engineers was appointed. Long years of warfare in China have sadly held up those beneficent works which could mean so much to the lives and happiness of so many millions of Chinese.

One of the proposals is to erect a mighty dam across the Yangtze. Preliminary surveys and plans have, indeed, already been made for harnessing the river in the Ichang Gorge. An American engineer, Dr. Savage, engaged on this task has reported: "With a normal reservoir water surface at elevation 200 it will develop 10,560,000 kilowatts of power. The project will provide water for irrigation of ten million acres of good agricultural lands, and sufficient flood storage to control the largest flood on record. Also, the project when supplemented by navigational facilities will permit ocean-going steamers to ply inland at least to Chungking. It will further furnish clear domestic water for many cities and industries."

It is an ambitious plan on a scale never before tackled. The dam presents unprecedented problems, and special means must also be used for lifting steamers over the dam. But, gigantic as the task is, Dr. Savage considers it entirely feasible.

The source of the Yangtze lies in one of the most inaccessible regions in the world—the highlands of north-central Tibet, where the altitude is around 20,000 feet. The exact source can only be conjectured, but it is known that the young stream hurtles down from the lofty uplands, flowing eastward through the arid region of eastern Tibet, and then cuts through the eastern extension of the Himalayan massif, following a deep, narrow valley. Entering the

Chinese province of Yunnan the river takes a zigzag course, forming for a hundred miles or so the boundary between Yunnan and Szechwan. Entering the latter it receives the waters of a number of large tributaries that drain that province. Here, with the help of the mountains through which it passes, it creates the most magnificent scenery—scenery that even surpasses that of the famous Ichang gorges—while it is navigable for at least three hundred miles above Chungking to that city. Chungking, however, marks the limit of navigability for fair-sized steamers, and so is one of the most important cities along the entire length of the Great River. During the war it was the capital and seat of government of China.

In the first sixteen hundred miles of its course the Yangtze descends some sixteen to eighteen thousand feet; through the final sixteen hundred miles that descent is scarcely eight hundred feet, and the last two hundred miles are practically dead level.

Nanking lies 235 miles from the mouth of the Yangtze, and large steamers can reach it the year round. Hankow, 600 miles from the coast and centre of the tea trade, can also be reached by ocean-going steamers of considerable size. From Hankow to Ichang and to Chungking navigation is carried on by flat-bottomed steamboats, which have, above Ichang, to traverse the famous Yangtze gorges and rapids.

It is the journey from the sea to Chungking which I now propose to describe.

* * *

To Shanghai, formerly the world's greatest international city, the external trade of the Yangtze Valley gravitates. Standing on the Whangpoo, a tributary of the delta region, this city is the largest in Asia, with a population of three and a half million. The principal streets of its International Settlement, with their neon lights, fine shops, and luxury hotels, are, however, a strange contrast to the squalid, tortuous streets of the teeming Chinese city, and within a stone's throw. But this is a port whose present political

control is bound to affect considerably its future, which, inevitably, is certain to be different from the past. So, without more ado, we will take boat and start off on the journey upstream. I must emphasize, however, that some of my remarks must be taken to apply to what we used to consider "normal" conditions of life. For it was in such normal times that I myself made this trip.

The journey, then, between Shanghai and Hankow by boat is made in the greatest comfort. From the deck of his steamer the passenger may sit in ease and watch the busy traffic of the Huangpu. Junks pass one another slowly and serenely in barbaric display, their wide brown sails asleep in the wind. Swift-moving tugs hurry about. Big ocean-going steamers are discharging or taking on cargo. In the midst of it all are myriad other craft, little tossing sampans, four-masted sailing vessels, noisy motor-launches. The river, incidentally, at this point is extremely wide, so wide indeed that it is difficult to see the opposite shore as the steamer moves on its accustomed course.

From the standpoint of navigation, this ten-day journey from Shanghai to Chungking divides itself into three natural sections. First, there is the section between Shanghai and Hankow; second, the middle river between Hankow and Ichang; and thirdly, the most scenic portion of the trip between Ichang and Chungking, for which it is necessary to travel on a smaller ship specially designed to circumvent the rapids in the Yangtze gorges.

Of the scenery on the lower river, up to Hankow, I would say it was quite interesting without being thrilling. On the south bank there are wooded hills, which approach to and recede from the river. On the north bank the country is generally flat, with fields of various crops extending right to the horizon. The river itself is sometimes broad, then at other times it narrows to flow between rocky bluffs, or, again, divides into two or three channels to pass round low, sandy islands, whose banks and shallows shift and change constantly.

The middle river, between Hankow and Ichang, is frankly dull. The river winds over the countryside in great loops

and thus almost doubling in its length the crow's flight. At Chenglin, the Yangtze is joined by its most important tributary, the Siang river. Above Chenglin the river becomes narrower and more shallow, and in the low-water season the channels here have a way of changing their position. At such places, River Office sampans keep the channels buoyed according to the latest soundings.

As we near Ichang the country becomes hilly again, until a solid block of mountains seems to bar our passage to the west. We have reached the foot of the gorges.

Between Ichang and Wanh sien lies some of the finest scenery of its kind in the world. For miles the river is beset by rapids, reefs, cross currents, and whirlpools. At no season is navigation safe here. Sometimes the waters in the gorges may rise as much as fifty or sixty feet in a single day, and in some of the gorges the high-water peaks have been measured at more than two hundred feet above normal low-water level!

A wild and almost impassable mountain massif shuts off the province of Szechwan from the outside world, and through this effective barrier of sandstone and limestone the Yangtze breaks its way in a series of steep valleys and deep gorges.

From Ichang a few minutes brings the steamer to the gateway of the gorges. It is like a great, gloomy cave. The sides of the hills shut in the only sound—the constant pulse of the engine, the creaking of a deck pole, the everlasting wash of the waters. For sixteen miles we go through Yellow Cat and Lampshine Gorge and into the zigzag reaches. Often sheer cliffs rise on either side of the foaming river, towering three thousand feet above it. Nowhere else is river traffic so perilous or so picturesque. In places the channel narrows to fifty yards in width, attaining a mean depth of over four hundred feet.

Hewn out of the face of these sheer cliffs a narrow road has been made—a miracle of construction; and along this track lines of coolies, sometimes numbering three or four hundred, toil and bend as they fight inch by inch to drag some heavy ship upstream against the current, which some-

times speeds along at 12-15 m.p.h. On occasion there is a broken cable, and then the junk concerned goes hurtling downstream, with her crew yelling and screaming in fear, and pulling for their lives to get their ship head-on into the current. Shipwrecks are not uncommon, but loss of life is held to a minimum by red-painted lifeboats which are maintained by the government for such emergencies.

Coming down-stream the position is different, but even then great care has to be taken to keep the ship or junk on an even keel. In many places ascending craft must await a signal to proceed, for the narrowness of the river does not permit of two ships passing, and down-coming boats have the right of way.

The ship we were on kept near the banks to avoid the strength of the current which swept down like Niagara turned loose. We were constantly having to change banks to find the deepest water and, as we veered across, the stern of the ship would swing after us as the current caught her broadside. The whole surface of the water was a swirling mass of whirlpools sucking the froth they created into their centres; a coffee-coloured torrent on its destructive way.

It was not long before we came to another land. Straw huts, tucked away under a ledge of rock, with no visible escape above from the rising water. Piles of rocks in mid-stream with the rushing current steadily working to re-sculpture them. A naked fisherman standing on a bit of rock and seining for his daily food. Tall bare rocks like citadels that caught the glints and rays of the sun. And sometimes, as the river broadened in places, a little hamlet on a wooded bank, smoke rising above the trees, the family watching our steamer pass.

On the morning of the first day after leaving Ichang, we entered Ox-Liver and Horse's Lungs Gorge, so-named, I was told, from the formation of the rock. Strange and weird as the name and as impossible of description is the gorge. Every now and then we would pass a miniature village built on a sloping bank where streets were steep and the houses were built high from the banks on slender poles so that they looked like bird cages. I was told that every winter houses

were built down to the very water's edge and that every summer they were regularly washed away. Evolution has had no effect on these builders.

The Wusan Gorge is twenty-five miles long—the longest of the gorges—and is also known as the Witches' Gorge. It is well named with its enormously high cliffs, dark and gloomy, very sheer. In some places the banks are green, terraced and intensively cultivated part way up, in other places the trees seem to be growing out of bare rock. Sometimes I could spot a pathway for trackers cut deep into the face of a sheer cliff so narrow that it would seem a man could never stand erect in it. From the stern of the boat I watched as the perspective changed and farthestmost cliffs seemed to rise above the nearer ones. I gazed up at caves in the sides of the rock and saw the tiny figures of people looking down on us in the boat. Many of these caves were banked up with walls of stone to prevent sliding. Many were abandoned.

Half-way along the Wusan Gorge is the Chinese Dynasty Stone, a smooth face of limestone, framed in a more crumbling vein of rock. Every time a piece falls from the frame, uncovering a fresh space, it is said that a dynasty will fall in China. And then there is the incomparable Wind Box, last, shortest, and most magnificent of the great gorges. Here the mountains are piled up on one another like a great dumping ground. Big black dreary holes in the rocks. Rocks like half-baked bricks dumped aside. Swirling water with black drift held in patches by opposing currents. It was depressing, gloomy, awe-inspiring. A little way, above the water's edge, thrust within a crevice, are coffin-like boxes. They are man-made and are about six feet across the face of the opening. Nobody knows how they got there and no one has been able to get up to see what they are made of. They look like clay or iron. The Chinese say that the devil put them there.

Apart from its extraordinary scenic appeal—a unique appeal, for I know of nothing else in the world to which the Yangtze gorges can be compared—there are also a number of sites of legendary interest that are passed, each with its

own fascinating story. I remember one place where there were steps running up and over the precipitous rock. This was the route, I was told, over which an Emperor escaped from his enemies. At another place I had pointed out to me holes in the cliff where centuries before short bamboos had been inserted to form a cliff ladder, by the cunning of a general whose army scaled these heights to escape from the gorge in which they were trapped. Farther on there is a cave where several military officials went into hiding with their wealth. They were afraid of losing their heads, it is said, and somehow they were able to get into a seemingly inaccessible cave in the mountain-side. Welcome visitors were drawn up by means of a rope let down from above!

The last stage of the journey to Chungking—the 175 miles above Wanh sien—suffers only by comparison with the gorges proper. Wanh sien itself is a most picturesque town, built upon the steep side of a hill among many hills. The hills behind rise at gradually increasing heights. The farthest are snow-capped and touched with the red rays of the setting sun. The nearer hills are flat-topped and give a curious impression of being cut from a picture-book. They are shrouded in the faint mist which is ever-present in the Szechwan country. The nearer sides are flat and bare. Into the bare sides are thrust half-buried temples that look like painted dolls' houses and are so much a part of the rock that they seem to have grown up there.

But all this upper river has, indeed, a character hard to describe in words. Pagodas, perched on prominent hills, herald the approach to walled villages; cities of refuge stand on seemingly inaccessible pillars of rock; junks are hauled over swift-running rapids by their spans of heaving trackers. The very real dangers of navigation have taken mythical shape. Every rock has its dragon, and every rapid its familiar spirit. The little shrines, which stand along the bank, bear witness to the gratitude of junkmen whose lives were spared when all seemed lost. The traveller cannot, indeed, fail to be impressed by a timeless struggle between man and nature, in which man has just, but only just, held his own.

Besides Shanghai the chief cities lying on the banks of

the Yangtze Kiang are Nanking, Hankow, Ichang, and Chungking. All of them have suffered considerable war damage, mainly by Japanese bombing.

Although Nanking has figured prominently in Chinese history for two thousand years, it has had many ups and downs. Several times through the centuries it has been the capital, only to lose its exalted position and suffer extensive destruction. Its last period of importance was quite recently, for the capital was moved here from Peking in 1928. With the victory of the Communists, it has, however, once again lost its position of leadership.

A crenelated wall wanders for over twenty miles around the city, up and down over hill and valley, supporting high, picturesque ruins, all grey and lavender as the sunlight and shadows fall. To the east, Purple Mountain looms large and near, protecting, under its shadow, the Ming tombs. Here, too, stands the imposing mausoleum of Sun Yat Sen, founder of the Republic of China. Compact villages cling tightly to the outside of the wall as though to gather safety from nearness. But inside are wide stretches of country, dotted with tiny settlements like little farms and spread with fields of mustard and splashes of lotus.

With the arrival of the National Government, Nanking had its "face lifted". The ancient and decidedly primitive city was modernized. Broad avenues replaced clusters of dingy dwellings; many new public buildings were erected, and facilities of water, light, and transportation came into being. War gave the place a serious setback, but comparatively few of its buildings were damaged beyond repair. The removal of the government to Peking, however, is a more deadly blow, for Chinese cities have a peculiar aptitude for going to seed when they are not properly cared for.

Hankow's importance has always hinged upon its trade, and it has been called the "Chicago of China". Here converge railways and waterways, although at the present time much industry is at a standstill for foreign steamers are stopped by regulations against inland waterway trade. In addition, there was great damage done to her buildings and installations.

It was tea and silk that started Hankow on the road to prosperity, but there are many other lines which contribute to her trading importance. Along the banks of the Han river and in the adjoining cities of Wuchang and Hanyang there are all kinds of large factories. Transshipments of medicines from Szechwan, zinc and manganese ore from Hunan increase the prosperity of the port in normal times and who knows what wealth has been made and is constantly being gathered from the illicit trade of opium?

While the gorges are the real boundary between the known and the unknown in West China, Ichang is like a breath of anticipation. For as one leaves the monotonous plains that characterize the country from Hankow, the first sight of a new strange country challenges the imagination of the traveller. Unfortunately, Ichang is rather disappointing, for its distinction lies in its being an important shipping port.

My most interesting memory of this place is of a pyramid-like hill across the river from the town. Here a number of years previously some enterprising Japanese had placed three Chinese characters advertising a Japanese medicine. The characters read "*Ch'ing kuai wan*" and they mean "the invigorating pill", but when spoken they sound the same as the characters which mean "Manchu dynasty quickly finish". This caused great consternation among the coolies who only knew the spoken language and agitation on the other among the Chinese officials who realized the effect these words might have. Measures were started to try to get these characters removed, but the Japanese stood on their rights, and they are possibly still there to-day, as they were years before the downfall of the Manchu dynasty.

Chungking is an extraordinary city as regards its siting, and it is also quite unlike Shanghai, Nanking, and Hankow, for this historic trading centre is Chinese, body and soul. Here are remnants of ancient Chinese walls, venerable pagodas, and a clustered confusion of mud and bamboo homes clinging to the sharp hills. Prior to 1927 there was not a single wheeled vehicle inside the city wall and few streets wide enough to accommodate them. But gradually new roads were cut, though some are still unbelievably steep for

the rickshaws, buses, and the few private cars. The city also got electricity and water. During the war much damage was done, but since then there has been rapid reconstruction. The city has a population of around 600,000, which was increased to over a million when it became the war headquarters of the National Government.

Everything that was once beautiful in this city has gradually disappeared; but there remains the setting. Away at the back of Chungking rise the hills in range after range, for which that far away land is famed. These are no ordinary hills. They rise in fantastic, dream-like shape. Some of them are needle-like in form, some are chopped off squarely at the top, others are rolling and wooded. Gashes in the nearer ones show red soil beneath, and so that strip of country is called the Red Basin. Sometimes, the hills are covered with rhododendron, and sometimes they are pink with cherry blossom.

The city straggles beyond the walls. It is also surrounded by its dead; acres and acres of white tombstones, marking their graves, and here and there a concrete mausoleum. Beyond this are gardens and parks and summer homes of wealthy men. Wherever a small stream cuts through, it is bridged by a structure of beautiful and unusual design.

Transportation in many of the streets can only be effected by canopied chairs borne on the backs of toiling men. One's ascent is almost vertical, and the way winds through a surging crowd of humanity, not unmixed with pigs and mules. The steps are often slimy and filthy, and one feels in constant danger of being dropped because of one of the bearers slipping—but they never do. Sometimes the street descends in a series of steps with two-yard stops between, and the bearers ahead begin a new descent before the ones behind have fairly reached the landing. It is like soaring to ride thus: a swoop, a rest, and again a swoop.

Perhaps the most unpleasant things in any Chinese city are the beggars, and Chungking I found to be particularly repulsive in this respect, for nowhere else are such awful sights to be seen. A grey-haired beggar woman with a scarred leprous face asks for alms—her nose is entirely gone,

but a copper coin is in its place and through the two holes in its centre she draws her breath; an old man with only skin drawn over his bones and a withered pipe-stem limb; boys with running sores—kept so, so that their owners may not lose their eligibility to the beggars' guild; another old woman with disfigured face and sore-covered body, seated on a step—and a tiny child wailing at her dried-up breast. Of such things are made the great city so that you, in your canopied chair, wish that you had not seen and, having seen, could possibly forget.

Thinking to clear your mind of this side of the city's ugliness, you make your way to the bazaar. Here there are streets and streets of little shops, and to make closer inspection it is best to leave one's canopied chair in order to walk among them. There one may see many curious things. Buckles of jade and balls of agate and amber. Ugly little men carved from ivory or wrought in crystal. Little wooden boxes ingeniously fitted into one another and designed for wealthy women's vanities. Brooches designed from old, hand-wrought gold and set with crystal over brilliantly blue kingfisher feathers. Tiny wooden cups decorated with script. Peach stones carved into little idols and strung upon a silken cord. Then there are the shops of silks—heavy, ivory-coloured crepe, rich tapestries woven with a pure gold thread, yellow raw silk twisted like golden taffy.

Keepers of medicine shops exhibit their strange wares and proclaim the healing or strengthening powers of a tiger's skull or a dragon's tooth. They bring out the lining membrane of the gizzard of a fowl and explain the miraculous cures it will produce. They have a "midsummer root" which deprives the eater of speech and a precious portion of an ox's gall which transmits great courage to him who would partake thereof. They have also the cocoons of caterpillars and the dried leaves of many flowers—wild honeysuckle and lily flower and the curious *chin-ch'ai*, which is so very tenacious of life that it recovers even after it has been dried. Even the stomach of a mosquito is not too small to be proclaimed peculiarly effective in the cure of fevers.

Then there is that section of Chungking devoted to big

business. Here they collect the products of the countryside. From far and wide industrious country people bring in handfuls of bristles from their pigs. They are long and strong bristles, for they come from the wildest pigs of the wildest country—who have not become softened by being fed on slops. The bristles have been laboriously sorted into bundles of uniform lengths. They will be sent out into the world and there will command the highest prices on the best of markets. And those who buy will not know whence they came.

Here are goatskins and buffalo hides and sheep's wool. There is vegetable tallow and tobacco leaf. Here one may see a pouch of musk. In the remotest borders of this land there roams an antelope. He carries a tiny pouch, only about an inch and a half in diameter, and inside it there is a reddish-brown powder, light and dry and not gritty, and this powder is called musk. Its smell is peculiar and penetrating, its taste bitter and aromatic, and as a medicine it is a most priceless substance, fetching an enormous price even before shipment. It, too, goes out into the world and becomes a part of every good perfume on the market.

And so, in this great but distant Chinese city on the banks of the Yangtze, there are riches and poverty, beauty and ugliness, the old and the new, but above all there is teeming life—the life of a people of yesterday and of to-day. For, perhaps, the most remarkable thing about the Chinese is their ability to survive disaster after disaster, and still carry on.

I think, too, that the Yangtze river has played a considerable part in the development of the characteristics of those who dwell near it. To them it is not merely a mass of water, but a kind of spell. Upon the foreigner also, the spell is cast. A journey through the Yangtze gorges to Chungking is, indeed, something more than a mere trip. It is an experience which leaves an indelible picture in his mind.

Chapter Four

THE GANGES

INDIA'S HOLY RIVER

Of all the great rivers on the surface of the earth, none can compare in sanctity with the Ganges, or Mother Ganges, as she is affectionately called by devout Hindus. From her source in the Himalayas to her mouth in the Bay of Bengal her banks are holy ground. Each point of junction of a tributary with the main stream has its own special claims to sanctity. But the tongue of land at Allahabad, where the Ganges unites with her great sister the Jumna (eight hundred miles long), is the true *Prayag*, the place of pilgrimage to which hundreds of thousands of devout Hindus repair to wash away their sins in her sanctifying waters. Many of the other holy rivers of India borrow their sanctity from a supposed underground connection with the Ganges.

As is so often the case, especially in India, fond fables relate to places of holiness. In the case of the Ganges an ancient legend tells how Ganga, or Ganges, the fair daughter of King Himalaya and of his queen, the air-nymph Menaka, was persuaded, after long supplication, to shed her purifying influence upon the sinful earth. The icicle-studded cavern from which she issues is the tangled hair of the god Siva, the Hindu divinity, who is the destroyer in the trinity in which Brahma is the creator and Vishnu the preserver. Loving legends hallow each part of her course; and from the names of her tributaries and of the towns along her banks, a whole mythology might be built up.

The estuary of the Ganges is not less sacred than her source. Sagar Island at her mouth is annually visited by a vast concourse of pilgrims, in commemoration of her act of saving grace; in order to cleanse the 60,000 damned ones

of the house of Sagar, she divided herself into a hundred channels, thus making sure of reaching their remains with her purifying waters, and so forming the delta of Bengal.

The six years' pilgrimage from her source to her mouth and back again, known as *pradak-shina*, is still performed by many, and a few devotees may yet be seen wearily accomplishing the meritorious penance of "measuring their length" along certain parts of the route. To bathe in the Ganges at the stated festivals washes away guilt, and those who have thus purified themselves carry back bottles of water to their kindred in far-off provinces. To die and be cremated on the river bank, and to have their ashes borne seaward by her stream, is the last wish of millions of Hindus. It is said that even to ejaculate "Ganga, Ganga", at the distance of one hundred leagues from the river might atone for the sins committed during three previous lives.

But apart from its great religious significance the Ganges has earned the reverence of the Indian people by centuries of unfailing work done for them, for it is of great commercial and agricultural importance. She and her tributaries are the unwearied water-carriers for the densely-peopled provinces of northern India, and in its valley irrigation has been carried on more extensively than anywhere else in the world. Great canals linked with innumerable ditches divert the floodwaters. Wells, literally by the million, pit the valley where water is raised laboriously by primitive bucket pumps operated by plodding oxen. Silt from the Sacred River imparts to the soil a continual rich fertility. None of the other rivers of India, in fact, comes near to the Ganges in practical beneficence. The Brahmaputra and the Indus have certainly longer streams, but their upper courses lie beyond the great mountain wall in the unknown recesses of the Himalayas. No other river in the world—it is no exaggeration to claim—has so deep a meaning for so many people, for in its valley they swarm by tens of millions; more human beings than may be found in any similar region, save that of the Yangtze Kiang.

Not one of the rivers of southern India is navigable in the proper sense, although in the north the Ganges allows

steamers to proceed up from her mouth for over a thousand miles. Consequently the river has played a pre-eminent part in the commercial development of northern India and many great factories and cities are to be found along her banks. Again, unlike the Brahmaputra and Indus, many of these cities are of great historic interest. Calcutta, Patna, and Benares are built on her banks; Agra and Delhi on those of her tributary, the Jumna; and Allahabad on the tongue of land where the two streams unite. Many millions of human beings live by commerce along her margin. Calcutta, with its suburbs on both sides of the river, contains a population of nearly two and a half millions. It is one of the world's most active ports, and is also the educational centre of India.

Birthplace of the Ganges is in the Himalayas near Gangotri, ten thousand feet above the sea, while several of its northern tributaries come from far greater heights: the headwaters of the Gogra from near Nanda Devi (25,645 feet); the Gandak from the neighbourhood of Dhaulagiri (26,795 feet); and the Kosi springs from that Tibetan outpost Gosai Than (26,291 feet), while its affluents reach even to the flanks of Kinchinjunga (28,146 feet), and that greatest of all mountains, Everest (29,002 feet). Thus it can be claimed that the waters of the Ganges spring from the lands of everlasting snows, the abodes of the gods among the icy peaks of the Himalayas.

Once it has left its mountain source the Ganges soon enters the plains, and through its valley flows eastward at a very gentle gradient to the sea. Two hundred miles from the sea the river splits itself up into its fanlike delta, one of the most extensive in the world and forming a region eighty to two hundred miles wide from east to west, comprising about one-third of the Province of Bengal. The initial portion of this vast delta contains fertile land, but changes later into swamps, the haunt of tigers and other wild game, and, finally, there are slimy mud flats, beyond which lies the sea.

Many other streams besides the Ganges pour their waters into this delta, including the Brahmaputra, whose volume

is by far the greatest of all. During floodtime the combined rivers provide an influx of waters having a volume of about 1,800,000 cubic feet per second, which is greater than the maximum of the Mississippi.

Historically, the Ganges provides much interest. Two great world religions, Hinduism and Buddhism, arose in its valley. Along this same valley invading armies have also made their way, often inflicting barbaric brutalities in the cities through which they passed. In addition to the cities I have previously named, there are others of considerable historic interest: Cawnpore and Lucknow being particularly linked with Britain's occupation of India. Equally as rich in historic association is the Jumna, site of various Mohammedan conquests and seat of their capitals, of which Delhi and Agra are the most outstanding.

In order to provide a background to the story of the Ganges, I am taking three towns of historic interest on its banks—Hardwar, Cawnpore, and Benares—and will give a brief account of each.

* * *

Hardwar is quite a small town, but it is very old, very celebrated as a centre for religious festivals, and through the course of history has borne many names. It is the first place of importance that the Ganges encounters on its course, and it lies on the river where it leaves the mountain range and enters the great India plain, having passed through a great gorge. In fact, one of its common names is Gangadwara or the gate of the Ganges.

Picturesquely situated on the river bank, Hardwar has a succession of ghats and temples. The most sacred of all the holy places in the town is the Har-ki-pairi or bathing ghat, so called from the imprint of Vishnu's feet shown on a stone built into the wall. Originally this ghat was very small, but following a terrible disaster when 430 pilgrims were crushed to death in trying to reach the pool, it has been considerably enlarged. At the present time over two million pilgrims visit this spot annually so as to bathe in its holy waters, formed by a current of the Ganges.

Adjoining the Har-ki-pairi is the Gangadwara temple, the largest and most important of all the Hardwar shrines. Every twelfth year a special bathing festival known as the Kumbh-Mela is held in Hardwar, attracting more than 500,000 pilgrims from all parts of India, when bathing in the river becomes an act of peculiar merit.

In the past some of these gatherings have been attended with riots and bloody affrays between rival sects. In 1760 the rival mobs of Goshains and Bairagis fought a pitched battle, in which 1,800 are said to have been killed, while in 1795 the Sikh pilgrims slew 500 of the Goshains. Outbreaks of cholera have also frequently caused large numbers of deaths, and occasionally the authorities have had to disperse the vast assemblage in order to prevent its spread.

Considerably further down the Ganges is Cawnpore, an important rail junction and industrial centre. But it is for its massacre of British soldiers and European families during the Sepoy mutiny of 1857 that this town holds notorious fame. It is an oft-told story, yet it bears repetition, as all great stories in our history merit.

At that time there were in Cawnpore about 750 Europeans—men, women, and children—including 175 British soldiers. There were also a number of native troops of uncertain temper. The British officer in command was Major-General Sir Hugh Wheeler, a man of distinguished service and great experience though well over seventy years of age.

The local Maharaja of Bithur, better known as Nana Sahib, was a disgruntled man, constantly engaged in intrigues and surrounded by a host of dubious, scheming courtiers. Yet, outwardly, Nana Sahib appeared friendly towards the British and by most, including Wheeler, was considered to be a loyal supporter of the Government. He was even allowed to retain his own small force of armed dependents.

Apart from the native troops of dubious loyalty, there was also in Cawnpore a considerable city rabble, which contained a large number of criminal fugitives on their way to Oudh, where they would be beyond the reach of the British authorities. When the rumour was spread about concerning a new cartridge to be issued to the troops, and

which was alleged to be smeared with animal fat—contrary to their religious beliefs—the mutinous excitement was easily fanned.

By now impending danger was apparent, so the European civilians were all moved to the barracks, and General Wheeler telegraphed for reinforcements to Lucknow, which arrived in the shape of fifty men. He still, however, depended implicitly on the Nana who was given charge of the treasury. Certain measures were taken to fortify the barrack-fort, but the magazine was abandoned, a measure which has afforded food for criticism ever since. It could have been held for an indefinite time against almost any force, and contained abundant supplies of every description.

By June 4 preparations in the British entrenchment were well advanced, and on that day the native cavalry mutinied, followed by other troops. Their first acts were to loot the treasury, open the jail, and plunder the civil station. The sepoys then marched off for Delhi; but the Nana hastened after them and induced them to return and destroy the English, actually informing General Wheeler of his intentions by letter. All Europeans were hastily summoned to the entrenchment: but many were too late, for at 10 a.m. on the 6th the first gun was fired at the besieged garrison. From that moment till the 26th the defence was subjected to an incessant bombardment from heavy guns brought by the Nana out of the magazine. Three boatloads of fugitives, some sixty or seventy persons, coming down the Ganges to seek shelter at Cawnpore, ran aground and the whole party was massacred by the Nana's order.

Various assaults were made on the entrenchment but were repulsed, though the losses of the garrison from artillery and disease were heavy. A sad loss was caused by the firing of one of the thatched barrack roofs, resulting not only in the destruction of all the hospital stores, but at the same time depriving many of the defenders of shelter from the burning sun. There is no doubt that at this time even a very slight reinforcement would have enabled Wheeler to deliver a crushing blow on an enemy who was now becoming disheartened. Unfortunately, just prior to the siege, he

had seriously weakened his own force by sending fifty men to Lucknow.

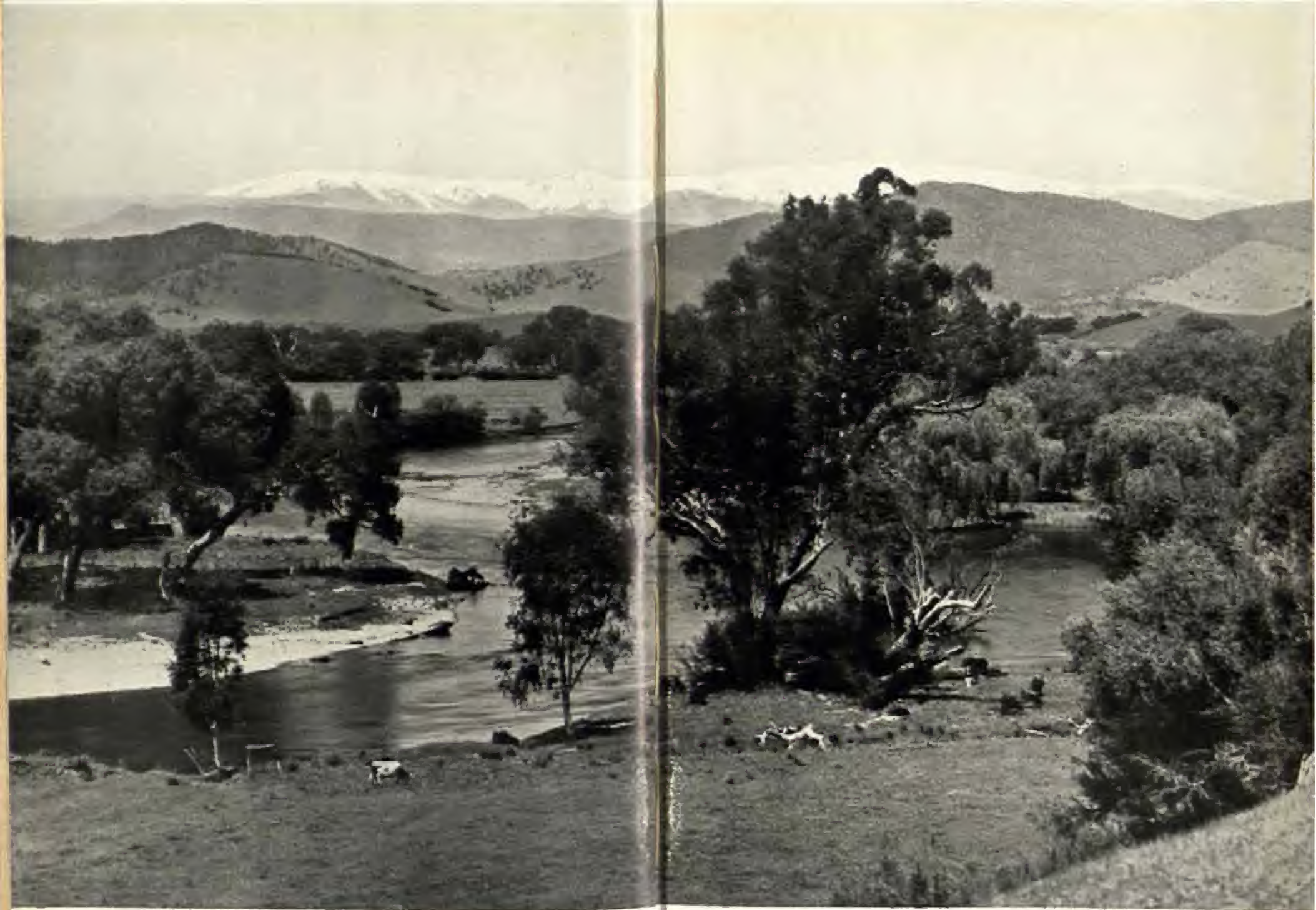
On June 25 the Nana proposed terms to the besieged which were accepted, and on the morning of the 27th the garrison marched out under arms to take to certain boats on the Ganges. Nana, however, had broken his word and made certain arrangements which resulted in them all, with one exception, being captured. Even out of the one boat which managed to get away, only four persons survived to be rescued by the loyal Rajah of Murarmanu. From the other boats, all the men were shot on the river bank, but the women and children to the number of 125 were carried off into captivity. Further massacres took place during the next two weeks and more women and children were added to the original body of prisoners. They were kept at first in a building, used by the Nana as his residence during the siege, but were later removed to the Bibighar in the old cantonment, until the final act of the tragedy on July 15, when the approach of Havelock warned the Nana of his inevitable fate.

Meanwhile the Nana had been enthroned as Peshwa on July 1, though his sovereignty was little more than nominal. Trouble arose between the rebellious Hindus and the Mussulmans, the latter turning their attention to a leader of their own choice, Nanhe Nawab. The latter had already become an object of suspicion and he was consequently imprisoned by the Nana, who at the same time tried to pacify the Mohammedans. The rule of the Nana was, indeed, of the most primitive description, being based wholly on force and fear. Funds were collected by extortion from the bankers and merchants of the city, who soon wished the British back. But there were many other adherents—for a time—to the Nana's flag, and soon many other districts were in open rebellion, until practically the whole Rajput community joined in the rising.

The Nana, however, was not long destined to sit upon his blood-stained throne, for he now had to reckon with the avenging army of Havelock. When his troops met the British and were utterly routed, he had all his helpless captives in the Bibighar foully murdered. By now Cawnpore



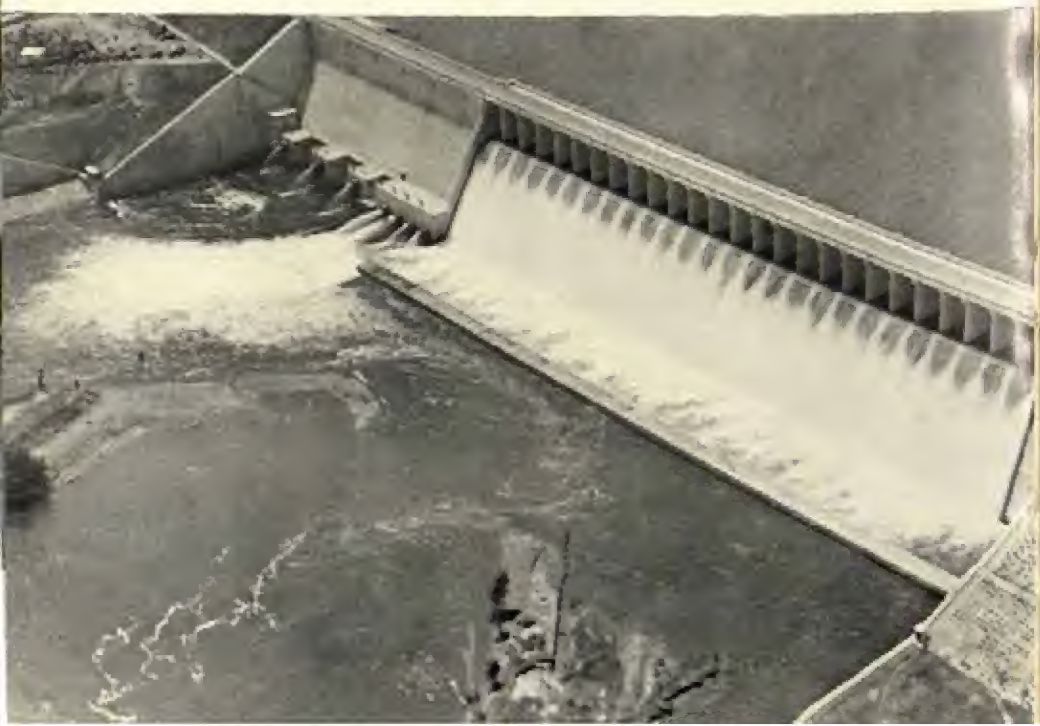
The source of the Ganges in the Himalayas



The greatest river of Australia: the Murray



Contrasting scenes along the Murray: (*above*) a quiet stretch at Blanche Town, South Australia, and (*below*) the Hume Weir



was in utter confusion, and despite a last stand by Nana's troops, the rebel army was defeated and their leader fled with all haste across the Ganges only to die, as is believed, a miserable death from fever and gangrene in the swamps of Nepal Tarai. Of events elsewhere in India there is no need to write here, for this is simply the story of a sad page in British history, under the heading of "Cawnpore".

Benares, four hundred miles west-north-west of Calcutta, is one of the most ancient of Indian cities, for it is certain that the place was one of the earliest outposts of the Aryan immigration, and everything points to the existence of a populous city on this spot at a very remote period. It is said that Buddha preached his first sermon not far from here and that Buddhism flourished for a time, but for many centuries the sacred city has been given to Hinduism. Benares is, indeed, the Holy City of the Hindus and the object of constant pilgrimages. It is perhaps the most essentially Indian city in the whole of the peninsula.

Benares is naturally a city of considerable size, for it has a population of a quarter of a million, and it maintains numerous marts and bazaars, where the manufacture of silk brocades, gold filigree work, lacquered toys, beaten brass vessels, gold and silver thread, and jewellery can be seen by the visitor. But it is on the Ganges that the real life of Benares centres. People come from the palaces and jungles to die on its sacred banks, and the old and the sick are brought here by their families to await their end. The relatives often never return to their homes in the country after the death has taken place, and so the town itself gets constantly swollen in size. For those who feel their end approaching this is the spot so eagerly desired.

"Oh! to die in Benares. To die on the banks of the Ganges! To have one's body bathed for the last time, and then to have one's ashes strewn into the river!" (Pierre Loti).

Nearly all streets in Benares lead to the river, where they grow wider and wider, for the city itself is a perfect labyrinth of narrow passages. Here on the water-front are magnificent palaces and the most fantastic skyline in the world, a frieze of granite temples, rosy pyramids, golden shafts, and all the

sacred city, extended in terraces, as if to catch the first light and deck itself in the glory of the morning. Altogether there are said to be 1,500 temples and large mosques, and also many sacred bathing places, approached by the famous ghats, or flights of stone steps.

These massive tiers of steps, which stretch along the bank and reach to the water's edge even in times of drought, where fallen temples emerge from their slimy bed, were made in honour of Ganges, and on each landing there are little granite altars, shaped like niches, in which diminutive gods are placed. These images are like those of the temples, but they are of more massive construction, so as to withstand the swirl of the waters which cover them during the annual floods.

Throughout the year tens of thousands of worshippers throng these stairways, pilgrims from all parts of India. Some have measured their length along the river bank from its source in the Himalayas. In a state of spiritual ecstasy they descend into the muddy waters, wash their clothes, bathe their bodies, and drink from the "purifying" stream. Here and there funeral pyres (burning ghats) burst into flames, while the smoke of roasting flesh rises as an almost continuous incense. The ashes are later committed to the waters accompanied with floral gifts. The bodies of sacred cows are also cast into the Ganges when they die, and on their bloated carcasses great vultures soon settle to tear at the decayed flesh. Strange to say epidemics are not brought about as one might expect.

Many of the ghats have their own special link with a mythological deity. At the Assi-ghat, for instance, one of the five most sacred bathing places, the story goes that Durga after achieving victory over Suma and Nisuma, two demons who had disputed her authority for a million years, rested at Durga Kund and there let fall her sword, which carved out the channel of the Assi, the stream being thereafter blessed by the goddess with the gift of taking away the sins of those who crossed it into Kashi.

At the famous Dasaswamedh-ghat a steep flight of stairs leads down from the main road that traverses the city, and

the ghat derives its name and sanctity from the sacrifice of ten horses performed here by Brahma, who thus made Benares as holy as Allahabad. The place is the scene of great bathing fairs, especially those which take place during eclipses.

Another one of the five special places of pilgrimage is the Manikarnika-ghat. It derives its name from the well into which the earring of Parvati is said to have fallen, the word meaning the jewel in the ear. Other stories are told in connection with its origin, but at all events the waters of the well, rendered fetid by the thousands who come to wash away their sins there, are considered the most efficacious for bestowing salvation among all the bathing places of India. Four flights of steps lead down to the water, and between the well and the Ganges is the Tarakeswar temple, which has suffered much from the action of the river. Above the temple is a large round slab of stone in the pavement, inlaid with a marble block bearing the footprints of Vishnu: it is the special place where members of noble families are cremated.

It is at dawn that the Brahmin faith begins, and it is at this early hour that the scene by the river front is most glorious and impressive. "Awakened by the kiss of the sun, all that have received souls from Brahma rush joyously down the granite steps. The men, whose faces beam with calm serenity, are garbed in Kashmir shawls, some pink, some yellow, and some in the colours of the dawn. The women, veiled with muslins in the antique style, form white groups along the road, and the reflection from their copper ewers and drinking vessels shimmer amongst the silvery glints of their many bracelets, necklets, and the rings which they wear round their ankles. Nobly beautiful both of face and gait, they walk like goddesses, while the metal rings on their arms and feet murmur musically."

All come to the river garlanded, each one bringing an offering of a wreath. In the many temples there are morning prayers, the beating of drums, the wailing of bagpipes, and the howling of the sacred trumpets.

Mingling with the throngs are naked children, yogis,

bearded fakirs, sacred cattle, sheep and goats, dogs and monkeys. The cattle advance with deliberate steps, while people respectfully stand aside offering them fresh wreaths of reeds and flowers.

At the foot of the steps the men disrobe and plunge to their waists in the sacred waters. The women, still wearing a veil of muslin round their shoulders and waists, merely plunge their many-ringed arms and ankles into the Ganges; then they kneel at the edge and let their long unknotted coils of hair into the water. From all sides the worshipping people shower their garlands and their flowers into the flowing waters; all fill their jars and stooping, fill their hollowed hand and drink. Religious feeling reigns supreme and all sensual and material thoughts seem to be banished. These waters of the Ganges, indeed, appear to be, as I mentioned in my introduction, "heaven sent".

Chapter Five

THE MURRAY

AUSTRALIA'S GREAT RIVER

Properly speaking, this chapter tells the story of two rivers; the Murray and the Darling, for it is these two tributaries which join together, some six hundred miles from the sea, to form a united river—the one great river of Australia.

Each of the two main tributaries are themselves only parts of extensive river systems, so that with their branches they spread out over one-fifth of the continent, and contribute about one-half of its agricultural and pastoral wealth.

Statistics are notoriously inaccurate, especially when they concern rivers. An enthusiastic Australian writer, for instance, makes the claim that the Murray is the fourth longest river in the world—the Nile, the Amazon, and the Mississippi alone taking precedence, “with only 800 miles to spare”. This same writer gives the total length of the river from the source of its longest tributary to the mouth to be 3,532 miles, of which 3,212 miles are navigable. Well, I suppose it all depends upon one’s individual interpretation of the words “length” and “navigable”!

The actual lengths of rivers have little to do with their importance, which hinges far more on their interest and their value to the country through which they pass. On this latter score especially, the Murray-Darling is a river of first-class status.

Both rivers were discovered by the same explorer—a young Army officer, Captain Charles Sturt. It was in 1829 that Sturt, who rebelled at flogging his fellow-men, left the little hell of Botany Bay and started to write names on nameless rivers. He took with him seven companions—four of them convicts. All braved such perils that they deserved the name passed upon them: “heroes of the lonely way.” One

of the most serious of these perils was the savage natives, for at that time they were quite untamed. Their aim was to destroy the white intruders. On many occasions Sturt, who was travelling on a whale-boat, had to use his greatest powers of diplomacy to combat possible attacks from painted war-parties, with spears quivering, among more scowls than smiles. Several times the white men were forced to fire into the air to show the blacks their magic. On one desperate occasion, neatly and completely trapped by a nudist army of six hundred fierce savages out on a sandspit, the Captain was about to order a fatal half-volley right into the ranks, when a mutual friend from up-river arrived at the psychological moment, shouted a truce, swam across, and saved the situation. A thrilling episode in the drama of exploration.

Even when Sturt arrived at last at Lake Alexandrina, a vast lagoon adjoining the sea, he was unable to find its outlet. The Murray had to be his reward. Two years later a Captain Barker, in making a similar attempt, was murdered by the natives.

The Murray-Darling has an imposing—and misleading—drainage area. For there is an unceasing struggle against a meagre rainfall, a hostile climate, and a singularly unattractive terrain.

The Murray starts its life as the Indi, in a range of low mountains, called rather hopefully the Australian Alps, in Victoria. It then joins the Swampy Plains river, rising at the base of Mount Kosciusko, the highest peak in Australia. After they mingle their waters at Bringabrong, the stream becomes the Murray. The river forms part of the boundary of New South Wales to the north and flows in a westerly direction for sixteen hundred miles to empty into Encounter Bay, an indentation of the Great Australian Bight. First, however, it mingles with the shallow Alexandrina, a lake or lagoon some thirty miles long by twelve broad, with an area of 220 square miles and a depth ranging from seven to twelve feet. A curious extension is the spurlike lagoon called the Coorong, which parallels the sea for nearly a hundred miles, separated only by scrubby sand dunes.

The river, which is 70 to 800 feet wide, drains 100,000

square miles in Queensland, practically the whole of New South Wales west of the coastal mountains, more than half Victoria, and 20,000 square miles in South Australia.

In order to conserve water resources, so necessary in a country like Australia with its variability in rainfall, considerable engineering works have been constructed along the course of the Murray river. There are a number of locks and weirs along its course; there is the Murray Mouth Barrage, extending for five miles, which controls the whole flow as it enters the sea; and, most important of all, there is the Hume Reservoir.

This huge storage reservoir lies on the Upper Murray and consists of a mass concrete spillway, 900 feet long, and a further great earthen dam, averaging 110 feet in height, which extends across the flats on the Victoria side of the river for a further 4,300 feet. Thus the total length of the whole structure is just over a mile.

Behind this dam is a large inland lake, the largest sheet of fresh water in Australia. An idea of its size can be indicated when it is known that it covers three times the area of Sydney Harbour; with regard to its capacity, it holds back enough water to cover one and a quarter million acres of land to a depth of one foot, or to put it another way, it could meet the whole requirements of Melbourne and its extensive suburbs for a period of twenty years.

The Darling river is as long, if not longer than the Murray. It has its source in Great Dividing Range and Darling Downs, and its course is generally south-west. Its length to the junction with the Murray is about 1,750 miles. Several once important tributaries now fail to reach it, losing their waters instead in the desert sands. Thus the river varies greatly in its flow, sometimes being in flood, while at other times it ceases to flow altogether, breaking up into isolated pools and sand bars.

After the two rivers join, no further tributary links with the combined stream, and as there is considerable loss of volume by evaporation the waters sometimes sink very low. Following a drought, in fact, it is even possible for men to wade across the channel.

As the course of the Murray passes through a land without any outstanding physical features and as it does not now carry any serious river traffic, with the anti-climax that its mouth is useless for navigation, there would be no point, as in the other chapters of this book, in attempting to describe the route of the river. It will be better, perhaps, to give some idea of the use to which its waters have affected the adjoining countryside—for there are many big dams and weirs against which the river backs up in considerable lakes. And to this purpose, I will take the town of Mildura in Victoria. Its cycle of development forms an epic story.

* * *

Between sixty and seventy years ago the site on which Mildura now stands, as well as all the surrounding country for hundreds of miles, was largely sheep farming country which during the fairly frequent droughts became barren wastes, with sheep dying in their tens of thousands, perishing out on the plains, lying in rotting heaps on the very river-banks, bloated with water and too weak to climb again for the feed they could not find. Skeleton poverty had the pioneers in its grip, and settlers everywhere were leaving their farms. Stark madness, indeed, to send others to follow them.

And as though drought was not enough, a Pharaoh's plague of rabbits descended—an army of occupation marching west to the conquest of a continent, eating it bare as a billiard table, honeycombing it to nightmare, and multiplying all the way along. The sheep-pastures were a moving blur of rabbits. Every blade of hope went down before them. They demolished the leaves of the shrubs and the bark of the trees. They burrowed into the sand-hills to devour the roots of the few cast-iron tussocks that held them together, leaving a trail of starvation and siroccos of blowing sand.

Meanwhile, the Murray river was traversing this land of misery with water, water everywhere, emptying millions of gallons of wealth per day into the sea. The moral was obvious and at last it penetrated.

In Melbourne, the capital of Victoria, there was a promising young man named Deakin—Alfred Deakin. His

name is now written indelibly in history as one of Australia's greatest orators and statesmen, a founder of the Commonwealth, and three times Prime Minister.

From the threshold of his career Deakin looked far into the future, and saw "the bare and blinding desert transmuted by industry and intelligence into orchards and fields of waving corn." The mountain would not come to Mahomet. The Murray river must be brought to the service of the land. It was an age of big undertakings in a very young country; of valour rather than discretion; of venturing to win. The Victorian Government listened with interest to the youthful St. Paul, approved his plan, and set him to achieve a miracle.

The first thing Deakin did was to master the subject of irrigation, and he turned to Western America for the results of practical experience, where already much had been accomplished. His brief but comprehensive tour—26,000 miles in thirteen weeks—of California, Colorado, New Mexico, Kansas, and Utah, was an inspiration, an awakening. But all his dreams and schemes for Australia might have come to naught had he not had the good fortune to meet two brothers named Chaffey. They were Canadians, of British stock, who were superb pioneers. They had come to California and turned thousands of apparently hopeless acres into rich irrigated land by the ingenuity of their engineering skill.

Deakin was, therefore, highly delighted when he succeeded in attracting the brothers to Australia to found a Chaffey colony. When George Chaffey, one of the brothers, arrived, however, he found himself bogged down by the red tape of a socialized Government ownership of land. He decided to return to America, but not before travelling along the Murray river. Of all the stations he saw Mildura had fallen upon the most evil days. Marooned across eleven million acres of uninhabited country, it was left to its dreary doom. Thirty of its miserable acres would not sustain one emaciated sheep. Rents had fallen to a penny per annum per fourteen acres!—and, even so, the bailiffs were in.

When George Chaffey made an offer to buy the place

there was amazement. When he said that one day the whole of the station area would be a garden, it was treated as a good jest. A fruit colony at Mildura! How absurd!

But George Chaffey was no fool. Here were the ingredients of California, the suns of Spain, and the third ingredient—water: millions of gallons of it, rolling past every day.

There were, however, more red tape difficulties to be overcome before the Chaffeys took over for development a quarter of a million acres on the Lower Murray. They agreed to spend £300,000 on various improvements and irrigation works. They also secured from the South Australian Government an additional quarter of a million acres at Renmark, further down the Murray from Mildura.

It was late in 1887 that Mildura Station was formally taken over by Chaffey Brothers, Limited, and they set to work forthwith on their colonization scheme. They planned the township of Mildura, laid out ten-acre fruit blocks, and, most important of all, installed pumping plants. It was a colossal undertaking, for not only had hundreds of tons of machinery to be brought to the site, far distant at that time from a railhead, but men had also to be attracted there to work. Relentless war had to be carried out first on the landholders—the rabbits—puffing bi-sulphide of carbon into thousands of burrows. A rabbit-proof fence was then erected to enclose 25,000 acres.

By mid-1888 settlers had begun to take up land and to move in. The small township also attracted the necessary professions and trades: a doctor, an editor, a shoemaker, a hairdresser, a policeman, and so on. A school was built. Churches were erected. A bank was opened.

The Renmark settlement was also going ahead, but there were not nearly the same problems of conquest. Yet, although conditions here were more amenable, settlers went in far larger numbers to the more difficult Mildura.

A vigorous emigration scheme was initiated in Britain resulting in hundreds of settlers setting sail—no assisted migrants these, nor remittance men, but independent and purposeful landowners, well-equipped and willing to build up a future in the wilderness. Australia has never known

more worthwhile emigrants. The fact that Mildura was two hundred miles from civilization did not daunt them. They came by water if the paddle-wheelers were running, in high river. Otherwise, for six months in the year, there was a three-day, soul-shaking, sardine-packed journey in a creaking old coach; and no hotels *en route*. Some of the new arrivals must have felt disillusioned during this sleepless journey.

On arrival at Mildura they found the very limited accommodation crowded out. And so, these often gently-nurtured men and women from the "Old Country," took to tents. And while the men did the clearing and cultivating, the women took the washing down to the river, gathered firewood, and cooked the rabbits and ducks the few remaining blacks brought to them. Meat came up from Wentworth by steamer, sometimes rankly salted or half bad, and it was a great event when a settler killed a pig.

Then winter came, with flood and frost, and their tents hung heavy about them. But still more settlers came. Numbers had invested their whole capital. The fruit would take three years to grow, and the nurserymen charged high prices—often for the most inferior trees—so these young Englishmen set to to earn extra money by working for the various contractors. Valiant and cheerful indeed were those English settlers, knowing nothing of Australian conditions.

But there was a lighter side. The first of many race meetings was organized, to be followed by a ball. Unfortunately the specially commissioned band from Adelaide was stuck on a sandbank in the steamboat and did not arrive till four in the morning.

Then there were England versus Australia cricket matches, exciting as any Test; boat races on the Murray; musical evenings and concerts under the moon; and the excitement of an occasional baby arriving. It is doubtful whether the Murray magpies sing one-half so sweetly to-day as they did when Mildura and Renmark were young.

With the coming of New Year 1890, all were planting feverishly, eager to see results. 120,000 orange trees and 150,000 vines were ready to be rooted. Figs, nectarines, pears, plums, walnuts, olives, almonds, loquats, straw-

berries, prunes, wheat and lucerne were planted. In time, however, the planting narrowed down to 50 per cent vines, 30 per cent stone fruits, and 20 per cent citrus. Seven hundred landowners were living on their land in Mildura alone.

More and better machinery for pumping was also being imported by the Chaffey—good pumps, too, for they are still in use to-day, a tribute to the excellence of British manufacture. Prices soared for those magical acres that three years before had been an Ultima Thule of dead hopes and dying sheep. Soon owners refused to sell at £60 an acre.

But troubles loomed in the offing. Labour agitation was rife at that time in Australia, and soon the strike-leaders brought dissension to Mildura. When George Chaffey refused their demands, work stopped, the engineering works closed, and the pumps abandoned. The settlers themselves, however, took over, and the strikers drifted gradually back to work.

Development followed development in the town. A Town Council was formed and nine councillors elected. Mildura had been declared a port, and now had a harbour master, and five steamers at one time at the wharf. George Chaffey was building a new fleet of his own design, the first of them the *Pearl*, a Mississippi stern-wheeler, steel frame, three tiers of saloon decks, and accommodation for one hundred passengers.

In 1891, Lord Hopetoun, Governor of Victoria, paid a special visit to lay the foundation stone of the Chaffey Agricultural College. A philharmonic choir of seventy voices and a full orchestra gave periodical concerts of Haydn, Mozart, and Mendelssohn. Many of the audience turned up in elegant evening dress, imagining themselves back in the Albert Hall. An epidemic of typhoid fever came to the settlement. The average temperature for fourteen days was 105 degrees in the shade. Many folk, including nineteen babies, died.

Five tons of dried fruits were sent away in 1891—fruits as precious as gold—and exhibits won championships when entered at shows. Then came another trouble. The Chaffeys decided to raise the price charged for water, as its original cost was ridiculously inadequate. And so, in September 1892,

there was another strike; and the pumps were idle. Alfred Deakin came himself to settle it, which he did after delivering an address that was a masterpiece of philosophic oratory. He spoke for an hour and a half, and held his listeners spellbound.

Far worse troubles, however, were on the way. The first great failure was the absence of rail transport, for when the first bumper fruit crop came along early in 1893, the river closed. No longer could the paddle-steamers come through. This meant sending the fruit in jolting drays, at a terrific cost, and taking three days, and then another twenty-four hours' railway journey to Melbourne. The settlers tried to dry their fruit, but their methods were pathetically primitive. Fruit rotted by the ton. Many of the trees sold to settlers by scamp nurserymen now proved to be not true to type. Oranges were proving to be lemons, peaches were of mongrel stock.

At last the river rose, but it was too late now to dispose of the year's crop. Still worse troubles were to follow. The irrigation channels began to leak. The salt in the sub-soil seeped upwards to the surface, killing the orchards. Panic set in—the panic of men and women who had staked everything and lost. The settlement was in chaos. Vines were uprooted because they did not pay, trees because they were bearing worthless rubbish, both because of the salt and the seepage. Settlers abandoned their blocks—for there were no buyers—and tried to get labouring work at 5s. a day.

The wine-grapes were the only silver lining in that unhappy year. Legally, both Mildura and Renmark were "dry" towns, but, in practice, liquor flowed freely; and now Mildura decided to drown its sorrows. Four thousand gallons of so-called brandy and 35,000 gallons of crude, fierce wine were manufactured within the year. Renmark, however, was not nearly so badly hit as Mildura, for it had been developed on more cautious lines. During all this time the Chaffey's had continued development work, but they now came to the end of their available funds. No investors could be found either in England or America to supply a loan; and then in 1893 the colossal commercial tragedy known as

the bank smash paralyzed Victoria. All save three banks closed their doors. Thousands were utterly ruined, and a dreadful depression set in. Everything came to a standstill, including the proposed railway to Mildura. The castaways on the Murray river were forgotten.

Yet, at this time of supreme catastrophe, with Renmark and Mildura apparently sinking ships, with untimely floods which destroyed the crops, burst the channels, flooded the orchards, and moulded the fruit, with no money to work the pumps, and with the Chaffey offices forced to close their doors and the brothers themselves losing everything they possessed, there occurred a strange, almost unnoticed event. A few rooted cuttings of the true sultana, an oval greenish-yellow grape, round the world from Persia, by way of London hothouses, and California, were obtained from the Botanical Gardens in Adelaide. It was now, for the first time in Australia, planted by two settlers of Renmark—a few acres, and merely an experiment that was later to become the outstanding wealth of the Murray river, comprising 60 per cent of its dried vine fruits, the gold of its future harvests.

Royal Commissions were appointed to sift the story of the Chaffey's finance, and verdicts were given against the two brothers. All their great properties were sold for next to nothing. George Chaffey, robbed of confidence and character, returned to America, a broken man. He even had to borrow the money to go. Yet, strangely enough, fate had in store for him the greatest triumph of his career—the reinstatement of his reputation as an engineering genius, wealth, recognition, and a brilliant achievement. For he took in hand a million acres of barren sand in the Colorado Desert and turned it into the Imperial Valley, Winter Garden of America.

W. B. Chaffey stayed in Mildura, determined to stick it out, went out on the land and worked like a labourer—but much harder. It was not until 1919, twenty-three years later, that he got straight again. Mildura and Renmark were now out of the world and forgotten. Two-thirds of the shops were untenanted, two-thirds of the orchards withering away.

Yet, in this darkest hour, it was, in very truth, the hour before the dawn.

Winged hordes of grasshoppers swept in like a wind of pestilence, leaving the land bare and desolate when they departed. It was like some midsummer madness, but the invaders could not be checked by man. The trouble with salt and seepage in the soil was, however, successfully overcome. Then, most important of all, W. B. Chaffey preached the gospel of co-operative marketing instead of the existing hole-and-corner selling to the nearest storekeeper. The Mildura Fruitgrowers' Association was formed, later to become the wealthy and powerful Australian Dried Fruits Association, marketing their products throughout the British Commonwealth. But Mildura still had no railway. It came at last in 1903. From that moment Mildura laid aside its sackcloth and ashes. Its seventeen years of sorrowing were over. The metropolis of the mallee has since then never looked back.

There were various troubles, of course, to be faced and overcome. Early in 1904 the Murray was swept by a red-hot blizzard, the most appalling heat-wave in its history. At Mildura the temperature rose to 123 degrees at midday for three days in succession; at Renmark it recorded 110 degrees at night. Animals dropped dead and the vines withered away. The labour of the year was lost and acres had to be replanted. Had it not been for the universal comradeship and accompanying faith there must have been another woe-ful exodus. As it was, within three years the setback was surmounted and the river was back to its old form of production.

The Australian Government was now going in for big land settlement schemes, many hinging on irrigated land. Mildura kept on steadily progressing. Droughts and floods, general strikes and two Great Wars held up but did not stop advance. The Murray here had changed out of all recognition, and sheep-wilderness was a thing of the past. How different a vista to W. B. Chaffey, patriarch and pioneer, honoured by the King with the order of the C.M.G., was the pageant of the river now. In 1926 he died. Mildura and

Renmark mourned their oldest and truest friend. The country lost a great Australian. Not long afterwards a statue was erected to his memory in Mildura. "He laboured for the common good", is the inscription chiselled below.

In 1927 came the Big Freeze, the most terrible frost in river history. This "Act of God" crippled the industry, all thoughts of a 1928 harvest were destroyed, and the bright winter sun shone down on universal ruin. The dreaded Black Spot—anthracnose, a curse since Roman days—twice within twelve years threatened to reduce the green glory of Mildura to swift and sure decay. But Black Spot was overcome in time; while the dreaded phylloxera has never made its appearance.

And so I come to the end of my brief story of Mildura. I think you will agree with me it is of epic standard. You may well have never heard of this town before—a town now of 10,000 inhabitants, with fine streets and buildings, luxurious homes, the most up-to-date packing houses, schools, churches, golf-courses, and so on. You may not know that 60 per cent of the total pack of the dried fruits of Australia come from this vine city; that tens of thousands of acres of unbroken green, stretching for hundreds of miles along the Murray, and dotted with substantial homes, are to be found here. It is, indeed, water turned into gold, the wealth of the thirsting earth, and the wealth of the Murray waters.

What would Charles Sturt think of the changed scene? Did he have visions like Alfred Deakin and George Chaffey and William Benjamin Chaffey? I think so, for they were all part of a gallant company: dreamers of dreams, and great is their triumph and reward, for they paved the way to what has proved to be the most phenomenally successful colonization of waste lands in closer settlement in the Commonwealth's history, a vindication of its vast silent spaces that are too glibly referred to as deserts.

I said at the start of this chapter that the importance of a river lay far more in its value to a country than just in its mere length. The Murray-Darling proves this, and makes the ringing prophecy come true: "And fields shall be bought in this land whereof ye say it is desolate, without man or beast."

Chapter Six

THE VOLGA

HEART OF RUSSIA

The Volga is the longest European river, and the most important in the U.S.S.R.—the Lena and the Ob, both in Asiatic Russia are, however, of greater length. With no outlet to the sea, it empties into the landlocked Caspian, having travelled over 2,300 miles from its source in the dreary marshes of the Valdai plateau, 665 feet above sea level. Thus the average speed of the current is quite small, usually about two to three miles an hour, although when the water is high, this speed may rise to twice as much, while when the water is low in autumn it becomes much less than this average. In its lower part, south of Samara and Saratov, the breadth of the river is over a mile; with its delta it comes out into the Caspian 110 miles broad. In this great delta of over five thousand square miles, the river empties into the sea through some two hundred mouths intertwined with almost innumerable side channels.

Along this mighty waterway, both up and down, there is constant movement of innumerable steamers, rafts, lighters, and tugs bearing thousands of people and precious cargoes of the products of the rich land. Beside the banks lie many large towns. In various stretches of its long valley and plain great and mighty kingdoms have in the course of time been founded, once more to fall to ruin—such as the Bulgars in Bulgary, the Khazars in the south, the Mongols, the Tatars, and others, until the Russians established their power from the north and west.

It is a curious thing that the name "Volga", which has so great a place in the affections of the whole Russian people, is not Russian, but comes from the Finnish people of the Bulgars, who founded a state on this river in the early

centuries of our era. Their capital, Bulgar (= Volgar), afterwards gave the river its name. But before this it was usually called Itil by the Tatars and Arabs, after the Khazar town near the mouth, while Ptolemy and the Greeks called it Rha, and the Finnish tribes Rau.

I have spoken of the up traffic on the Volga, and this, unlike most great rivers, is more important than the downstream. At Astrakhan in the delta, for instance, up-river freight is fifteen times heavier than that moving southward. For this river is a doorway into Russia, most of its traffic going toward the Baltic; the canal joining it with the Neva has made Leningrad the chief port of the Volga. To Leningrad far more goods are shipped than to Astrakhan, mostly fish, metals, manufactured goods, hides, corn, flax, flour, petroleum, oils, salt, and timber. The goods that are shipped down the river are mostly manufactured ones, and also timber for the treeless provinces of Samara, Saratov, and Astrakhan. Many barges, too, are broken up for their timber after making the journey once down the river with a load.

The river is always changing its course, and has to be dredged every year. Ships often run on the sand-banks; near the most dangerous ones there are generally steamers stationed to help them off again. Erosion of the uplands is another problem that has constantly to be faced. It is, indeed, with difficulty that a twelve-foot depth is maintained to the Caspian.

When winter comes navigation on the Volga ceases: in its upper reaches for four or five months, and in the lower Volga for about three months. The river becomes ice-bound, and railway lines are even laid on its surface from bank to bank at places where there are no bridges, and so the goods wagons are taken over without the use of costly ice-breakers. The ice reaches an average thickness of close on three feet, less, however, in the lower Volga.

Feeding the Volga are many tributaries, two of the most important being the thousand-mile-long Oka which comes from the west, and the 1,200-mile-long Kama from the east; all these tributary streams help to contribute to the vast drainage area of the Volga. This importance can be gauged

from the fact that the Volga and its branches provide some twenty thousand miles of waterways, this impressive total including numerous canals.

The importance of the Volga does not lie merely in its use as a waterway. "Great Volga" government projects are concerned with the construction of dams for power, irrigation, and water supply. For instance, an elaborate system of dams, canals, generating and pumping stations provides Moscow with much of its water supply; and near the Samara Bend, the largest hydro-electric station in the world stretches its two-mile dam and thus forces the river to do the quick, clean work of turbine and dynamo.

Fisheries, too, contribute an important source of wealth, the herring fishery at the mouth of the Volga being the greatest in quantity. This Volga herring migrates in a body up the river in early May, to spawn in May and June, and great numbers reach Stalingrad and even farther north. About 450 millions are caught yearly, weighing 150,000 tons. Other varieties of Caspian herring swell this total even further.

An interesting fish, which is also caught in the Volga, is the Caspian lamprey. This lowly eel-like fish with a sucker-mouth lives mostly on the bottom and in the mud, and goes up the Volga from the sea from September to December; after swimming 1,200-1,500 miles up the river it spawns in early spring. It is caught in a kind of eel-basket, and is served baked or pickled.

Carp, sheat-fish, pike, bream, salmon, and sturgeon all contribute to a yearly total of close on half a million tons of fish taken yearly in the Volga delta, the neighbouring waters of the Caspian, and on the lower Volga.

But now, enough of informative facts about the Volga. Let us follow this great river down its course so that we can get an idea of its cities and its peoples.

* * *

It seems strange to-day to realize that only twenty years ago foreigners were welcome visitors to Russia—regardless of politics—and that they could travel about, more or less

freely, in most parts of the country. You could, for instance, go to Cook's and buy a ticket right through from London to Tokyo, by way of the Trans-Siberian Railway, and you could likewise make the trip down (or up) the Volga.

It is this latter trip, made in the mid-thirties, that I now propose to describe. It saw its start in Moscow, where I got on the daily train for Nizhni-Novgorod, a trip that took about twelve hours. Before leaving Moscow, the Intourist Office had been unable to ascertain the time of departure of the boat, although there was supposed to be a regular daily service, but one does not have to be long in Russia to learn that nobody ever does know anything about the times of boats or trains. On more than one occasion, indeed, I found that to-day's train actually did not leave till tomorrow! And as accommodation has to be booked well in advance, it was not feasible to take yesterday's train either.

At the station at Nizhni-Novgorod I had to take an ancient droshky for the Volga boat, only to find at the quayside that there was no boat there as yet; it would be there, I was told, in the afternoon; in the afternoon the boat was there, but a breakdown in the machinery would mean a delay until late in the evening. Actually, we sailed the following morning. I had thus some hours to spend in this Russian city, once famed for its great fair, at which goods from all over Russia and the Orient were offered for sale.

Descriptions of life in Russia are always apt to get dated, and so I can only hope that the local hotel conditions in Nizhni-Novgorod have now improved somewhat—though I doubt it. For the hotel to which my Intourist guide conducted me and which he seemed to regard as the last word in excellence was like some fifth-rate lodging house. In the "lounge" there were a few tables and some rickety chairs. The floor had obviously not been washed for weeks, and in the dining-room stained, crumpled, and soiled tablecloths covered the tables. Flies were everywhere; they settled on the food, on our faces and hands, everywhere except on the fly-papers hanging from the ceiling. A very old man shuffled along and came for our order. A good half-hour later it was served.

To fill in the time my guide suggested a visit to some institution—a hospital or a worker's club—but I had already had my fill of these places. I suggested instead that I would like to see the new motor-car factory outside the town. But to-day, I was told, no transport was available. If only I had been there yesterday! Or perhaps some other day!

This left me with nothing to do but to go for a stroll through the town, which was very dirty and rather depressing. I climbed up to the Kremlin (ancient citadel) and looked down upon the Volga shining like a silver fish in the sunlight. The Kremlin, with its toothed walls, is now in ruins. The position was well chosen strategically; perched on top of a steep hill where the rivers Oka and Volga join, it must have been impregnable. An ancient church has been demolished which once stood there, and a new government building has been erected in its place.

It is a mistake—but one into which I have frequently fallen—to glamorize any place, especially in the orient, about which one has read romantic accounts. Nizhni-Novgorod is a striking case in point. I should never have expected to find there an exotic mart, full of the treasures of distant lands; but to discover a town with filth and garbage in the streets, great pot-holes in the roads and flies everywhere was a terrible disillusionment. The only mart was an open market where people clad in rags and with their feet wrapped in sacking offered butter and apples at fantastic prices. In despair, I returned to my hotel and beguiled an hour or two drinking "Chi" (tea), the universal drink of Russia.

In the evening my guide took me to the upper part of the town where there were more pretentious-looking buildings, including an Opera House. Here I was to see, in company with a full house of Soviet workers, an amazing modern ballet. It was propagandist, of course, and it culminated in the defeat by the virile Russian young male dancers of a buffoon character supposed to represent a British capitalist. Amidst tumultuous applause this wretched enemy, complete with top-hat, monocle, and evening dress, was made to bite the dust. The whole theme was too absurd to make me feel

annoyed—I was rather sorry at the deception played on the audience—and the superb dancing too, offered much compensation.

That night I went on board the *Express Steamer* which was to be my home for several days. It was a very old paddle-steamer of light draught, but capable of holding about six hundred passengers, most of them without cabin accommodation. My small cabin was bare, but had its full complement of insect life. I was given a small towel, an army blanket, a pillow-case, and one sheet. A couch was alongside one wall, and there was a wash-hand basin, but no water supply operating. The small window opening out on to the deck did not appear to have been opened for many a long day. I opened it and let in some much-needed air. The cabin had a nauseating bitter smell, which I learned later to associate with a particularly unpleasant type of insect.

Nizhni-Novgorod is a considerable distance from the source of the Volga, which as I mentioned earlier in this chapter rises amidst the lakes, marshes, and low-wooded hills of the Valdai plateau. I have been told, and quite believe, that it is a most depressing part of Russia, for it is one of the swamiest in the European part of the country. The streamlet oozes rather than flows from bog to bog for a distance of over twenty miles, when it successively traverses three terraced lakes, whose levels only differ a few inches from one another.

From these lakes the Volga turns eastward to Lake Volgo, where it is already a considerable stream, and then, three miles further on comes the first rapid where a dam has been constructed, which during the rains converts the upper valley, with its lakes, into one vast reservoir forty-eight miles long and over one mile wide.

Near this point the Volga is nearly doubled by the intake from another river, and it is from this point that the commercial stream may be said to begin. From here the Volga descends the slopes of the plateau through a series of rapids, which, however, do not stop navigation, and beyond the last of the series it winds unimpeded through the great

Russian lowlands, receiving numerous navigable tributaries, and communicating by canal with the Baltic basin. After passing a number of populous towns it is joined at Nizhni-Novgorod by the Oka, of nearly equal volume, and historically even more important than the main stream.

It was not till close on midday that my steamer set out at last on her journey down the Volga. By this time every inch of deck-space was occupied by travelling peasants, and the only place reserved for cabin passengers was a small melancholy saloon. It was badly in need of redecoration and a broom. A bust of Stalin was the only clean thing on the ship.

The food provided by the boat for the most part consisted of eggs, vegetable soup and river fish; such meat as was served was hard and of doubtful age. Along with the other passengers I soon gave up the unequal task of trying to masticate it. There were no stewards and an old woman brought in the meal and set the table, though she never remembered to bring the right table appointments. Another woman appeared to be responsible for looking after the cabins, but never made the beds or swept the floor; in fact, my cabin, although my passage was costing me over £5 a day, had nothing done to it all the time I was on board. I even had to go myself to get hot shaving-water from the kitchen. Each cabin had its own numbered key, but any key would open any door.

The herded and tightly packed humanity on deck appeared to be quite happy. They seemed to be constantly engaged in making tea, treading their way over bodies in their search for hot water. They sang, they talked and talked, but they certainly did not wash, and unwashed humanity in bulk is apt to become somewhat offensive, and at night the odour from the packed crowds in their quarters below deck and outside my cabin was insufferable.

At each landing stage a mighty wave of peasants surged off the boat, some on the completion of their journey, others in search of food from the open market, for the ship's store had a very poor assortment of goods to offer.

There was one single gangway for both the unloading of cargo and passengers; it was also used for embarkation, with

inevitable collisions. Muscular porters, carrying gigantic bales of cloth on their backs, forced their way through a heaving mass of perspiring humanity. Those disembarking, weighed down with their bundles containing all their worldly possessions, which were wrapped in gaily-coloured carpets, kept meeting their more nimble brethren, who had hurried off before them and were now returning to the ship, carrying water melons or rye bread for consumption on the journey. In addition, there were fresh passengers embarking, complete with bedding, and carrying live chickens with their legs trussed together and suspended upside down in a most cruel manner. It was a heaving mass of humanity jammed together in hopeless confusion.

In spite of the constant pushing and shoving, there were no brawls or free fights. The Slav is slow to anger and there is a stolid look on the bovine countenance of a peasant which gives the onlooker the impression that he must be insensitive to all blows. At every quayside were assembled large crowds of peasants who had been patiently waiting to board the vessel for long weary hours in the sun, awaiting permission to embark. They were resigned; they would get on some time, "Nichevo", if not to-day, tomorrow. Each time we tied up at a landing stage the same scene was re-enacted. We stopped at all hours, in the middle of the night, when disembarkation was carried out under the glare of the ship's lights, or during the drowsy afternoon. The hubbub of their voices as they shuffled along the decks used to keep us awake at nights until the vessel started off again, when all became silent save the throbbing of the engines and the gentle lapping of the boat as she forced her way through the water.

There seemed to be no time-tables. We arrived when we reached the next stopping-place, and we left according to the vagaries of the captain; it was rather a maddening position, as we were unable to stroll far from the ship, which would stop for anything up to four hours, and then suddenly start off again without warning, save a hoot on the siren. The captain never seemed to be able to give the slightest indication of his probable time of departure.



Boatmen and fisherwomen on the Volga





One of the gorges along the Yangtze Kiang

I have not said anything about the countryside through which we were passing, and, truth to say, there is very little that merits description. It is a most monotonous landscape. The country is flat and uninteresting, being mostly cultivated farmland—the soil is generally rich—but I did not observe many signs of farming activities. Now and again villages of poor-looking wooden huts were passed. In the centre of every hamlet was a well-built church whose golden cupolas caught the sunlight and made a striking contrast to the mean dwellings which surrounded it. But with these exceptions, and a rare town, the Volga wound like a great silver fish in the middle of the flat landscape. One almost wished a Potemkin could have miraculously come along and covered the nakedness of these plains with the scenic illusions he created for the Empress Catherine II when she made her celebrated journey down the Dnieper.

At Kazan, our first important port of call, the Asiatic aspect of Volga life became pronounced. This city has many humble mosques, although church domes and steeples dominate the sky-line. Their presence symbolizes the triumph of Slavic Christians over Moslem Turko-Mongols. But for Slavic success and Yermak's conquest of Siberian lands, the Volga, not the Urals, would be the edge of Asia.

Since Kazan's name never smacked of Tsardom, it was kept as that of the capital of the Tatar Autonomous Soviet Socialist Republic. This Tatar Republic is one of several such autonomous regions along the Volga. In each of them, loyalty to the Soviet Republic has developed without interference with local cultures. The Maris, Chuvashes, Tatars, Volga Germans, and Kalmyks speak their own languages and retain many of their own customs and costumes.

Although Kazan to-day is quite an important manufacturing centre, its Asiatic cast of countenance dates back to the Golden Horde. Led by the descendants of Gengis Khan, these Tatars swept across Europe to Hungary. They retreated to pitch their magnificent camp across the Volga from the site of Stalingrad and were crushed, after a century and a half of nomadic warfare, by Timur the Lame.

High above the little Kazanka river is a Tatar tower which bears the name of a legendary Princess Syuyumbeka, who threw herself from the 250-foot height when, after a long siege, Ivan the Terrible took Kazan in 1552.

Just below Kazan the clear waters of the Kama, sweeping in from the Urals, mix with the muddy Volga. From here on the Volga's course is to the south, and a high bank, cut by ravines, lies to the west. The low east bank is the western edge of steppe lands where Kirghiz and Mongol roam between the Volga and China's Yellow river.

At the end of the great Samara Bend is Kuibyshev, which used to be Samara, where invalids drank fermented mare's milk in kumiss establishments, famous wherever indigestion was known. Kirghiz still use this combination of lactic acid, carbonic gas, and alcohol to get drunk. Invalids, using it to soothe, rather than inflame, their stomachs, drink quarts of mare's milk wine in its milder stages.

During the war Kuibyshev attained considerable importance, for it became an auxiliary war capital—something of a change from being previously the gateway to the steppe, to Tashkent, Samarkand, Bukhara, and beyond. Here caravans of double-humped camels dumped their cargoes at the end of the sandy trail. To-day it is the centre of a great hydro-electric scheme.

In the neighbourhood of Saratov is a considerable German farming colony, descendants of the original German settlers brought in to colonize the region by Catherine the Great about 1764. Originally from Bavaria, Alsace-Lorraine, and Switzerland, they are now loyal Russians, though still retaining their own tongue. The Volga German Autonomous Republic is highly advanced in agriculture, industry, and education, and it is easy to notice the civilized state of these people, if only on the score of cleanliness and a passion for order.

Of Stalingrad, there is not much to say, for its heroic defence during the war against the German armies not only marked the end of the enemy's advance into Russian territory, but was also an epic of courage which will never be forgotten. Its great factories, which were totally destroyed,

have now been rebuilt, turning out tractors by the thousand to cultivate Russia's famous black earth. At the time of my visit the city itself, apart from the gigantic tractor factory and nearby blocks of workers' flats, which were actually some distance from Stalingrad, was old-fashioned and rambling, with rows of mean streets and decrepit houses, which seemed to be on the verge of falling to pieces, yet somehow managed to shelter whole hosts of human beings. The local hotel was much on a par with the one I have described at Nizhni-Novgorod.

Down to Stalingrad the Volga is a river, even though it flows below sea level from Saratov on. But from Stalingrad to the Caspian the Volga is an ever-changing mosaic of land and water, now lined with little canals, now spreading wide in one solid expanse of water or ice. This is the start of the delta, some three hundred miles from the sea, although the delta, properly called, is formed only about thirty miles above Astrakhan, by the forking of the Buzan branch from the main bed.

Sturgeon migrate up to Sarepta, fifteen miles below Stalingrad, and on their way upstream are caught and give up their roe not to their own kind but to *bons vivants* as black caviar. Prior to visiting Russia I had a gourmet's craving for this exotic and expensive dish, but I have since then lost this desire, for I had enough to last me a lifetime during this trip down the Volga. It used to be served up at every meal in slabs!

The landscape offered by the marshy delta area was no less monotonous than what had gone before. On the low, swampy expanse to the east there was hardly a house or a village to be seen, but along the higher western bank there were many.

The heat had been increasing daily and by now it was grilling; and at night sleep was almost impossible. What made it more difficult to achieve were the gnats; there were a lot of them, and they can cause malaria. But there was nothing one could do against them. If I shut the cabin window, the heat inside became unbearable; and if one opened it, then the gnats poured in. We should, of course,

have been supplied with mosquito nets, but there were none on board.

Despite what I have said about the monotony of the landscape, the inconvenience of not being able to land ashore for any certain period, and the smelly condition of most of my fellow-passengers, the journey was certainly not one of boredom. I had ample opportunity, for instance, of studying the different types of Russians at close quarters. There were only a few saloon passengers on board: Red Army officers, government officials and business men (much the same thing). As the only representative of a "capitalist" country I was the target for innumerable questions, but many of the answers I had to give were not believed, so soaked are the Russians in what they are told in official propaganda. There was, however, one capitalist invention which caused a great sensation: my Rolls razor. No one on board the ship had seen anything like it, and I had to give many displays of how it worked. I was also asked by many of the men to get them such razors sent out from England on my return. Unfortunately for them, they could only offer me roubles in payment, and as I could not take these out of Russia or get them exchanged into sterling, it would have meant spending this money in the country—an almost impossible feat. I have, indeed, often found in my travels that it is a wise thing in the less visited parts of the earth to take some kind of article that will break the ice between the inhabitants and oneself. Certainly on this Volga boat I became a person of great popularity.

And so I came at last to Astrakhan, a city of considerable population, and from olden times an important trading town. It is very well placed as a transit harbour and is also the centre for the great fisheries in the Volga delta and the northernmost part of the Caspian.

As early as the first centuries of our era the Khazars had founded an important trading town, Itil, on the right bank of the Volga about six miles above Astrakhan; and it came to be the meeting-place for traders from Byzantium, Baghdad, Armenia, and Persia, as also from the Volga and the Don, and the lands to north and west. When the Jews were

turned out of Constantinople they made their way to Itil and developed the trade for the Khazars, and likewise spread their faith in rivalry with the Mohammedans and Christians. The dynasty embraced the Jewish faith about A.D. 740.

The Khazars were the leading middle-men between East and West, and Itil became their capital; but their power gradually lessened and their capital, which had been captured by the Russians late in the tenth century was utterly destroyed by Tamerlane at the end of the fourteenth century; and later Astrakhan was founded where it now stands, and became the capital of the Tatar khanate until it was taken by the Russians under Ivan the Terrible in 1557, since when it has been Russian always. Peter the Great made the town the base for his campaign against the Persians, built ship-yards there, and contributed to its growth. It is now used by several thousand ships a year, and its trade is important.

Astrakhan is a picturesque town with many colourful types to be seen there: Russians, Tatars, Persians, Kirghizes, and others. Its Asiatic aspect is emphasized, too, by the pagoda-like temples which replace the bulbous church domes of the Russian scene. On the highest spot in the town is the Kremlin, with a white wall round it, loopholed and with several towers. Within the wall is also the cathedral with five green domes.

In conclusion, I find that I have made no mention of the song of "The Volga Boatmen". The fact is I never once heard it sung, and Russians to whom I spoke professed ignorance of it. Actually it dates back to former days when there were tens of thousands of haulers (*burlaki*), who used to drag the boats and barges along the banks of the river, and it is from them that the well-known Volga songs come; but now there are tug-boats to do the work of the haulers, and their song is merely the raucous syren. But song or no song, Mother Volga has a great place in the life, the thought, and the poetry of the whole Russian people, and it plays a very great part in their economy. A journey on the river is an interesting experience—once.

Chapter Seven

THE DANUBE

HIGHWAY OF RACES

Next to the Volga the Danube is the longest river in Europe, and for volume of water and commercial importance it takes premier position. It is estimated, too, that the Danube carries more water to the sea than all the great rivers of France. Do not be deluded into picturing this great river as the "Blue Danube", for although immortalized as such in the loveliest of all waltzes, yet the sad fact must be recorded that the colour of its waters is mostly a muddy grey, verging almost on black, with, at places, a dirty dull greenish tinge.

As a glance at the map will show, the Danube is what can be termed a "scrambled" river, for its waters are apportioned along its course, from the Black Forest to the Black Sea, among seven nations: Germany, Austria, Czechoslovakia, Hungary, Yugoslavia, Rumania, and Bulgaria. In three of its political sectors the river is shared by pairs of countries, and almost one-third of the Danube's navigable length is thus shared by states which face each other from the river's opposite banks.

To the Greeks the future Danube was known as "Istros", but ancient navigation never took them far up the river, and so its source was a subject for legendary imagination. Herodotus called it "the mightiest of rivers", which it may have seemed to have been in his days. For five centuries the Roman eagles ruled over the entire Danube—a unifying achievement that has not been repeated since, if we except brief periods of domination by military conquerors.

Invading armies have poured along its broad valley on several occasions. The Emperor Trajan constructed an imperial highway along the river. Attila led his Mongolian hordes up the Danube Valley and for a time threatened all

western Europe. In 1096 a flotilla of some two thousand craft, packed with forty thousand Palestine-bound troops, descended the Danube to war upon the Saracen and redeem the Holy Sepulchre. And the Danubian castles, often nothing more than robber strongholds, took their toll of loot and the enslavement of passers-by.

None of these robber strongholds which dotted the heights along the river in medieval days had a more terrible reputation than that occupied by the lords of Aggstein. From their impregnable perch they laid heavy tribute on passing cargoes and defied all efforts to dislodge them.

It was Castle Dörenstein which eclipsed all local records in the capture-and-ransom trade when Richard the Lion-Heart, returning from Palestine, was seized by his great enemy, Duke Leopold VI of Austria, and languished as a prisoner in this place for more than a year. Legend has it that the minstrel Blondel wandered in search of his master, and one day while playing a love-song outside the castle heard Richard singing the words within. The necessary ransom was soon paid and Richard released.

Less than half a century later, the Mongols came as invaders, raiding the countryside in a dreadful way, so that, according to the chronicle of the times, the remnant of "the starving people in their frenzy killed each other, and it happened that the men would bring to market human flesh for sale." On the battlefield of Mohi, near the Danube, the armies of Bela IV of Hungary were almost annihilated by the Mongols, and the fate of all Europe trembled in the balance. There seemed nothing to stop these irresistible hordes in their westward sweep. Then suddenly occurred one of those peculiar episodes which change the face of history: some internal trouble arose at the Mongolian Court in the heart of Asia and led to the recall of their triumphant armies, which never came back—to the great relief of Christendom.

In 1453, following the fall of Constantinople, last bulwark of Christendom, the triumphant Turkish armies surged up the valley of the Danube, besieged Vienna, but got no further. The Turks retained for four hundred years

domination of the Balkan States, which only obtained their liberation in the nineteenth century.

Napoleon was the last great conqueror to appear on the Danube—I exclude events during the last two Great Wars—and in his descent upon the retreating Austrians he struck at Ulm, Austerlitz, and elsewhere, winning glory and capturing sufficient cannon to melt down into the Vendôme Column in Paris.

The Danube has seen much of Europe's history, and even at the present time the shadow of the Iron Curtain falls on this river, segregating its eastern portion from the west. Free navigation on this great water artery has through the centuries often been a problem, and for five hundred years with Turkish domination in its lower reaches trade was generally stagnant. Attempts were made to reconcile varying interests, and treaty after treaty was signed involving the commercial utilization of the Danube. It was not until 1856 that freedom of navigation for the ships of all flags was ensured in a pact safeguarded by the International Danube Commission—an insurance of small worth to-day.

The Danube's depth is proverbially variable. What with its sixteen main tributaries and hosts of lesser ones, "high water" at given points on the river may vary by thirty feet, while at "low water" even its maritime section is not navigable for boats drawing more than six feet. Again, in severe weather, the river freezes and thus it is closed to steamer traffic. Despite these handicaps, commercial navigation can be maintained for 1,600 miles of its length, and steamers can ascend as far as Regensburg in Germany, while towed barges and smaller boats can continue considerably further up-stream, to Ulm and even beyond.

But now let me take you on a conducted tour of the Danube, a journey I was fortunately able to make myself in happier times when no "Iron Curtain" barred the way.

* * *

For those who seek new ideas for walking tours I often advise following a river from its source. In its early stages at least, this invariably provides a most delightful meander—for rivers seldom flow in a straight line for long. Then

there are the constant diversions of villages and towns to be encountered on the banks. One of the rivers which I have traced from its genesis is the Danube.

This river's source lies at the head of a pleasant valley high up in the mountains of the Black Forest. There a tiny stream of clear water comes tumbling down the rocks, and, gathering strength and volume from numerous springs and rivulets, it cuts a deep channel into the rich soil and dances gaily along, presently to be joined by the Brigach and its twin-sister, the Brege, which rise about ten miles further to the south. These then are the sources of the mighty River Danube—Highway of Races.

Donaueschingen, a pleasant little Swabian town, is sometimes called the source of the Danube. It is situated about a mile and a half below the point where the Brigach and Brege join the single stream, which from this point is called the Donau or Danube, and it is the head of the navigation for small boats on the upper river. Between here and Ulm there are a number of weirs and dams, and many pleasant villages, pretty little towns, ruined castles, and former princely residences, amongst the latter being Hohenzollern, one-time seat of the Imperial Prussian ruling family. The scenery in this neighbourhood is of great beauty.

From Sigmaringen, a delightful town close to the Hohenzollern Castle, the Danube flows through a broad, fertile valley, and with a quicker current, as the banks have been partially canalized; small towns, such as Munderkingen, Kiedlingen, and Reichenstein are encountered, suggesting places that have once been of considerable importance. In the distance the great tower of the Cathedral of Ulm is seen rising up out of the low horizon.

Ulm, the old part of which is a maze of narrow, crooked streets, used to be a great military stronghold, until quite recent times, in fact. For just before the last war I chanced to stay there during a period of German military manoeuvres in the neighbourhood. And in the dining-room of my hotel how conspicuous a civilian I felt—almost a suspect—while around me were what seemed to be dummies in uniform, heel-clicking, saluting and shouting "Heil Hitler".

It is the cathedral which is the great monument of this German town. It is said to be next in size to that at Cologne, and is a fine specimen of Gothic architecture. I climbed the thousand steps to the summit of its tower—the highest stone tower in the world—and looked down on the specks of human beings in the square below.

I spent another day inside the medieval walls of Ingolstadt, once noted for the university attended by Dr. Faustus of black-art fame, and then came to Regensburg, a city famous for many interesting historical events. Here is a truly medieval town, and its cathedral of Saint Peter is one of the architectural glories of Germany. I remember seeing within its walls a striking illustration of how medieval man everywhere sensed the devil's machinations in the soul-admonishing group of the devil and his grandmother; while outside there was Regensburg's bridge which could not be completed until the devil had been promised the souls of the first three beings who crossed it. However, the wily architect dodged his pact by sending across the bridge a dog, a cock, and a hen; whereupon the foiled fiend vanished amid fumes of brimstone.

For eight centuries that bridge had watched the Danube's ever-changing pageant: the Crusaders' fleets, the Mongol and Turkish hordes, the pirates who swarmed on the great river during a period of eclipse, and, in 1817, the freak craft of a Hungarian who actually made paddle-wheel boats move by steam.

In striking contrast to the etching-like beauty of Regensburg is the nearby Parthenonesque temple on a hillside overlooking the Danube. Built by Ludwig I of Bavaria over a century ago and given the Scandinavian name of "Walhalla", this florid building contains in its extraordinary Hall of Fame great statues and busts of titanic Valkyries and famous Germans.

At Passau, on the Austro-German border, there is a barge-crammed port, and seventeenth-century house gables extend tongue-like between the waters of the Danube and the Inn, which here terminates its individual existence.

The journey between Passau and Vienna takes about three

days. It is a peaceful trip, for the most part traversing the great plains of Upper Austria. Linz, the capital of the province of Upper Austria, is passed *en route*, and then we come to the Danube's region of medieval strongholds, such as Castle Dörenstein and Castle Aggstein. It is a land of history and legend—and a crime-soaked past. While under the moonlight the silver-bathed ruins recall the ghosts of the troubadours.

This part of the Austrian Danube, known as the Wachau Defile, has more than a historical significance for the Austrians; for in the orchards and vineyards that cover the narrow fields and the warm slopes that rise on both banks, some of the best wine and fruit of the country are produced. The Wachau is a lovely sight to witness in the spring when the little villages are islands in a sea of white and pink blossom, while in September when the grapes are being gathered and pressed by the side of the road in huge open vats there comes a feeling almost of intoxication.

Another feature of this remarkable river scene, finer, in my opinion, than the much-lauded Rhine, is the great monastery of Melk, a huge Baroque mass which rises sheer above a small arm of the river only a hundred yards or so away from the main stream. It is one of the most splendid achievements of the Austrian genius, and it is far from being the only great Baroque monument by the banks of the Danube.

But long before the counter-Reformation and the great wave of Baroque culture that went out from Vienna to all parts of the Austrian dominions after the Turks had been driven back out of western Hungary, monasteries had been founded along the Danube: Wilhering, Gottweig, and Klosterneuburg and others besides Melk. The Danube, indeed, appears to have been the channel by which Gothic penetrated into Austrian territories.

Its most imposing achievement [states John Lehmann] is the famous St. Stephen's Cathedral in Vienna; but other Gothic churches of the most varying styles can be found both above and below Vienna—in little towns on the river banks such as Krems and Tulln and Hainburg—as well as far downstream into Hungary, and in the former, German-colonized, parts of

Hungary which are now included in the frontiers of Rumania. This cultural "colonization" was not confined to the stretch above Vienna, since it was carried on in the 11th, 12th and 13th centuries, when no Turk had as yet set foot in Europe.

It is, however, the great rebuilding of the monasteries in Baroque style between the end of the 17th and the beginning of the 18th century, when the new palaces were rising in Vienna, which has given this stretch of the river its unique architectural splendour. Once the Thames also was famous for the monasteries which lined its banks; but Austrian Catholicism survived the flood of the Reformation, returned indeed with renewed force, and instead of the monasteries almost vanishing from the map as they did in England, they were rebuilt with even greater magnificence. Jakob Prandauer's Melk is rivalled by his St. Florian further upstream near Linz, and by Lukas von Hildebrandt's Gottweig planted four-square on its high and densely wooded spur a little further down. In Wilhering and Klosterneuburg there are also superb buildings, which deserve far more honour than they receive.

What shall I say of Vienna, greatest city on the Danube and full of nostalgic memories? Shall I take you, in this city of palaces, to the most renowned of them all: Schonbrunn of Versailles-like appearance. It is here that one can see the luxury of the Hapsburg regime. In its park Maria Thérèse once strolled and Napoleon, in 1805, planned his campaigns. It was here that the aged Emperor Franz Josef died during the First World War. To-day this royal palace is partly museum, partly an orphanage, and in the surrounding grounds the people of Vienna can stroll freely.

Schonbrunn not only saw the French conqueror in residence, but later it was thrown into hysteria by the shade of Napoleon *redivivus*; for in 1815, while the Congress of Vienna was availing itself of his banishment to put the much-battered map of Europe to rights, and over-joyed royalties were holding an endless round of champagne parties, a thunderbolt descended on the palace. The Devil (Napoleon) had escaped from Hell (Elba)! Map-makers and revellers scattered like the famous belling-the-cat conference when its mice delegates beheld a feline shadow on the window blind!

But though thrones may totter and rival regimes snarl at each other, Vienna's famous cafés go on forever. These fascinating haunts are more than merely places in which to drink coffee, quaff beer, or eat snacks, for the Viennese goes there to read newspapers, play cards, write letters, or interchange language lessons. Is time, money, and space precious? Seemingly not to the proprietors of Vienna's cafés.

During a journey down the Danube it is surely the place above all where one would wish to spend a few days. It is the home of so many good things: Vienna rolls, Vienna beer, Vienna schnitzel, Vienna sausages, and, of course, Vienna light opera. The last-named is but one aspect of the city's constant musical tradition.

Historically, Vienna has always been the adopted home of great composers—Gluck, Mozart, Haydn, Beethoven, Brahms—for here they found themselves among the most music-loving people on earth.

Two of her native composer-sons are world property. In Singapore and Chicago, Cape Town and Sydney, in every town throughout the world, the undulating measure of "The Blue Danube", with its ghosts of waltzers twirling top-like, can be heard. As I have said, the Danube is not blue, but to those who have loved that waltz its waters will forever be of that colour. How many millions of feet have moved to its rhythm since composer-bandmaster Johann Strauss first played it at the Vienna Carnival in 1826.

No such easy fame came to Franz Schubert. Leading a hand-to-hand existence, he produced in his short lifetime compositions enough to furnish half a dozen reputations. In his eighteenth year alone he created 25 major pieces and 146 songs. He composed so spontaneously that music seemed to leap fully born from his brain; yet after his death his estate was found to consist of manuscripts whose probate value was less than a pound.

And one mustn't forget Vienna's beloved, if apocryphal, "lieber Augustin", that little folk-singer of the battered hat, ragged clothes, out-turned pockets and bagpipe. One night in 1679 Augustin, drunk as usual, fell into a plague pit. Reviving next morning, he sat up among the corpses and

carolled forth, "Money's gone, sweetheart's gone, Augustin's in the dirt", setting it to the infectious lilt that was to invade the world's yet-unborn kindergartens. And whoever doubts this tale of optimism triumphant may see in Vienna, on a street corner, Augustin's little statue, piping to passers-by, "*Ei, du lieber Augustin, alles ist hin!*"

After leaving Vienna there is wide plain until Hainburg, a picturesque hillside town of walls, curious gates and crumbling towers, is reached. It is one of half a dozen Danube towns mentioned in the "Nibelungenlied" as being associated with the downstream journey of Burgundy's doomed knights. Modern crime, indeed, seems child's play with what took place in the Middle Ages.

The main story connected with Hainburg deserves, I think, brief description. It starts with the slaying of Siegfried by Hagen in Burgundy. Siegfried's widow, Kriemhild, then became the wife of King Etzel, withdrew to his castle on the Danube, and grimly bided her time. In due course, she invited a thousand Burgundian knights, including Hagen, to visit her.

Ignoring the prophecies of friendly mermaids, the thousand descends the Danube to Etzel's court. Then came the climax, a festal murder on a mass scale. Instead of just arranging for poison to be dropped into Hagen's beer, Kriemhild fires the banqueting hall; whereupon the Hungarian knights fall upon the Burgundians until all are extinguished in flame and blood.

Leaving Austria, the first town to be reached is Bratislava in Czechoslovakia. Here the Hungarian kings were crowned for centuries and it was then called Pozsony. In my Baedeker, Pressburg is given as its name. It was a bit confusing to me: one river port variously named by three nationalities, each name bearing for each nationality a peculiar cultural significance. Here, indeed, is a striking sidelight on that timeless shift of peoples and powers which is so largely the story of the Danube.

Bratislava is a beautifully situated town on the spurs of the Little Carpathians. From the castle-topped summit there is a splendid panorama of the Danube's two arms encircling

the Great Schütt, which locally is proclaimed to be "the largest interior island in Europe".

Continuing, the Danube is for some distance the dividing line between Czechoslovakia and Hungary, with fertile plains on either side. Then the river becomes wholly Hungarian, making a right-turn bend southwards to Budapest and the Yugoslav border.

Before arriving at Budapest the steamer stops at Komorn, an ancient town with strong fortifications, and Esztergom, one-time capital of Hungary. Here is one of the cradles of Christendom, and the city is rich in churches and ecclesiastical treasures. It is the seat of the Prince Primate of the Hungarian Catholic Church, whilst the cathedral (early nineteenth century) is the largest church in the country, and the most magnificent. The neighbouring mountainous country offers many fine trips.

Like Vienna, Budapest is a city of nostalgic memories, but its plight is even more tragic to the traveller, especially to anyone knowing its past glories. For, apart from the great damage inflicted on the city during the last war, there is also the "Iron Curtain" barrier. To-day the splendid Royal Palace which stood on the heights of Buda is no more, the handsome Elizabeth Bridge, which spanned the Danube with a suspension of nearly a thousand feet, was totally destroyed and has been replaced, but Pest's parliament houses, memorable in their river-set majesty and recalling in appearance the Houses of Parliament in London, still stand, even though they now only represent a memory of past liberties.

Nothing, fortunately, can rob Budapest of its beautiful vistas. I will never forget the panorama from the Petöfi-tér, as with one sweep of the eyes there was magnificently presented the Castle Hill, the St. Gellért Mount and the Danube. And then one thinks back of the cafés and restaurants of the Hungarian capital, with their famous and incomparable gypsy orchestras. There was that special kind of pastry-shop, too—the Cukraszda—where one tasted cakes comparable to the "food of the gods". No one ever left the city without tasting a *Dobos Torta* (Dobos was the name of the famous

baker who created this cake) and a *Rigó Jancsi*, a pastry named after a famous band leader.

From Budapest the Danube travels for mile after mile through the treeless, monotonous landscape, the fringes of the great Hungarian plain, coming at last to the Yugoslavian border and its capital, Belgrade. Perched high over the confluence of the Danube and the Sava, this city presents a striking picture. Few European cities are situated on two such waterways, whose navigable lengths within Yugoslavia total 720 miles.

Belgrade itself is an historic Balkan city, but to-day all relics of its colourful, but often smelly past, have been swept away and there is a rather dull modern town. At least I thought it very dull when I found myself stopping there for a couple of days.

About sixty miles below Belgrade the Danube leaves the plains, and at Bazias the chief hindrances to the navigation of the river begin and extend to Sibb, a distance of about eighty miles. The obstructions may be divided into four sections, namely: The Stenka Rapids, the Kozla Dojke, the Greben section, and the Iron Gates. The first-named rapids are about 1,100 yards long; nine miles lower down the second section—about a mile and a half in length—begins, and the river is narrowed from about 1,000 yards in width to about 300 and in some places 170 yards. These rapids are caused by rocks in the bed of the river, some of which are almost dry at low water, extending nearly across it, and causing sudden alterations in the currents and dangerous whirlpools and eddies.

At Greben, four miles lower down, there are more formidable obstacles, for at this point a spur of the Greben Mountain juts out into the river, and suddenly reduces its width at low water. The river journey over all these rapids demands most careful and skilful navigation.

Below the Greben rapids the river widens out to about one and a half miles, converging again to enter the Defile of Kasan, the grandest part of the Danube passage. The river, here 180 feet in depth, is confined to a width of 180 yards by huge perpendicular cliffs. Before the construction



*(Above, the Danube leaving Yugoslavia at Iron Gate, and
(below, a view of Passau from the air*





A river crossing in the Amazon Basin

of a road the defile was impassable on either bank. On the right bank traces of the Roman road constructed by Trajan in A.D. 103, are still visible. In fact, I was able to make out on the cliff-face bleared inscriptions dating back to Roman days. The ruins of these works are proof of the great labour expended on them, and also of the skill possessed by the Romans in those days.

Five miles beyond Kasan is Orsova, an important place of call and having an unusual islet close by, with the strange name of Ada Kaleh. Here lives a colony of Bosnian Moslems, who long ago built their little houses amid the encompassing ramifications of a dismantled Turkish fortress. Owing to forgetfulness on the part of treaty-makers, this small island remained Turkish for many years after the surrounding country had changed hands, and it was not until 1878 that Ada Kaleh came under the Austro-Hungarian domination, but it still remains a bit of Turkey enislanded in the Danube. At the time of my visit men and boys wore the red fez, no women were visible, the bazaar gave a true glimpse of the Orient, and the mosque was the only religious edifice.

When the transfer of this island was made to Austria-Hungary the inhabitants obtained various concessions, including freedom from customs duties. Unfortunately for visitors, these were levied on any purchases when one left this small sanctuary of free trade. Perhaps this tiny relic of the past has been left alone in undisturbed peace, with its inhabitants cultivating their small patches of tobacco and attar-producing roses. I hope so.

A mile or two further on we come to the famous Iron Gates, the last great defile of the Danube, but with scenery inferior to the Pass of Kasan. Before the regulation-works were constructed about sixty years ago by the Hungarian Government, the Danube here formed into dangerous whirlpools and cataracts, and navigation was dangerous. Hundreds of steamers have been wrecked in attempting to pass through this dangerous passage.

At the ceremony of inauguration (September 27, 1896), the Emperor of Austria, King Charles of Rumania, and King Alexander of Servia, with an immense gathering of bishops,

generals, and diplomatic representatives, met at Orsova, and went through the Iron Gates in procession, accompanied by "a continuous discharge of artillery and the loud huzzas of the immense gathering of soldiers, visitors and inhabitants."

Below the Iron Gates the river broadens out and the scenery becomes tame and uninteresting, for vast plains extend from the foot of the hills here to the shores of the Black Sea. These fertile areas lie the other side of a confusion of low, reed-grown banks, broken up and enislanded by ditches and small branches of the Danube on the left, and past the low, bare hills of Bulgaria on the right, with little to vary the sameness beyond the passing of islands and the sight of some of the waterfowl with which these lower parts of the river abound.

When Rustzuk, a Bulgarian town of some size, is reached, the Danube has attained a width of about two and a half miles. Opposite, on the Rumanian bank, is the town of Giurgevo, situated on flat marshy land. Founded by the Genoese in the fourteenth century, it is named after St. George.

The next place of importance below Rustzuk is Silistria, "the citadel of the Danube", about sixty miles further downstream. This too, like other Bulgarian towns along the Danube side, was once the site of a Roman military centre, and later notable as an oft-besieged fortress.

The Danube now runs entirely through Rumanian territory, past many small islands covered with bushes and reeds, where the bird life is particularly rich, immense flocks of wild geese, pelicans, herons, and waterfowl often being seen. Amidst these desolate swamps strange-looking fishermen make their homes, carrying out their trade by methods which cannot have changed much through the centuries.

Between the two great ports of Braila and Galatz, before it turns east towards the sea, the Danube narrows again to a width of less than a mile. In Galatz the river traffic ends, and the great ocean-going steamers stand by the quays. It is the end of our journey, too—a journey that has brought so much of history in its train, of Romans and Crusaders, Mongols and Turks. More than anywhere else in Europe,

the Danube brings home to one the victories as well as the defeats of our Western civilization. No river, indeed, in the world passes through a more complex patchwork of races, forms of government, and levels of culture.

The use and adaptation of the waters of the Danube for the purposes of transporting goods and passengers have been briefly mentioned. It was not until the coming of steam power that ships had sufficient force to make headway against the violent current upstream. But there were also physical obstacles, such as shifting sandbanks and rocks, to be tackled. Since 1830 an enormous amount of work has been done to make the river safe for shipping. In sections, such as at Vienna, where the Danube once spread itself into a confusion of side-streams and islets, there is now an ordered course.

While modern engineering skill has successfully mastered much of Nature's opposition to the commercial use of the Danube, political considerations have often lessened considerably the potentialities of this most useful of rivers. Even during the lifetime of the International Danube Commission there were constant objections to the various arrangements it had to make. Some of the problems that arose were due to the fact that while France, Great Britain, and Italy had representatives on this Commission, Russia was not given membership—mainly as a counter-move to Russia's Danubian ambitions, which have now been fulfilled.

International rivalry also entered into the organization of the various Danubian shipping companies, controlled either outwardly or by "invisible" financial interests by various nations, who in their turn indulged in cartel agreements. These agreements were often a cloak for political groupings, and hardly contributed to making the use of the Danube international in the fullest sense of the word.

One day perhaps the Danube will become truly free and open to all the countries through which it passes. For it is only when the many millions of peoples, which this great water-thoroughfare could serve, can increase their trade with free exchanges, that their consuming power will be raised considerably beyond its present low level.

Chapter Eight

THE MISSISSIPPI

RIVER OF THE LEVEES

The Mississippi was named "The Father of Running Waters" by the Algonquin Indians dwelling, ages ago, amid the forests of its vast valley, for they did not know of other great rivers upon earth. But they were not far wrong. In length and volume only the Nile and Amazon might claim priority.

And what a great river it is. Geographically, it divides, almost equally, the broad territory of the United States of America. No less than thirty states provide drainage areas for its waters, some of which come from far-off Montana to make a journey of four thousand miles. Hundreds of rivers, creeks, and other streams pour their contributions into the Mississippi. Fifteen thousand miles of its system are navigable, while the total length of all tributaries in a rainy year may be close on 300,000 miles.

Naming any one source of the river is really an impossibility. The headwaters of the Missouri river, its most important tributary, could make the clearest case, and these are to be found in a remote watershed separating Montana from Idaho.

Of more interest, and certainly of more importance, is the mouth of the Mississippi: the biggest delta in the world. It lies on the Gulf of Mexico, in the neighbourhood of New Orleans, and has a number of mouths which pass through over seven thousand square miles of marsh lands. The fertility of the soil is apparently inexhaustible. Rice, sugar, fruits of all kinds are grown in abundance, while the forests of the delta are remarkable for the large size of their trees and the exuberance of their foliage. Some cypress swamps

have produced as much as fifty thousand feet of lumber to the acre—not to mention several hundred yards of moccasin snakes.

In addition to the Missouri, other great tributaries of the Mississippi include the Wisconsin, Des Moines, Illinois, Ohio, White, St. Francis, Arkansas, and Red rivers. While along the river and its tributaries are centred such important cities as New Orleans, St. Louis, Kansas City, Omaha, Minneapolis, St. Paul, Memphis, Louisville, Cincinnati, and Pittsburgh.

Although modern means of transportation have robbed the Mississippi of much of its former prestige, it played a major part in the development of the country. Its importance to agriculture still remains, for the soil-matter it brings down is a major factor in the fertility of the lower farm lands. As a soil-carrier its capacity can be gleaned from figures calculated by expert official sources; these show that the river carries into the Gulf over four hundred million tons of solid matter each year.

But lurking behind the mighty power of this great waterway is a constant fear: the threat of floods. In an attempt to combat this danger, systematic control is carried out by means of levees—river embankments of varying sizes and shapes. The first systematic attempt to control the river was undertaken by the French pioneers, who founded New Orleans in the cypress swamps in 1718. When the young city was being laid out dykes were built along its river front to protect the citizens from overflow. Planters then began continuing levees along the river. This constant struggle of man against the elements continued in a desultory way for a hundred years. The defence of man against the relentless encroachment lacked, however, organization. There were the rivalries of adjoining states, lack of funds, and so on. It was not until the Federal Government took the problem in hand that plans for flood control were co-ordinated and carried out at an increased tempo, so that to-day the river is confined between over two thousand miles of high levees—some of them twenty to thirty feet in height. Then there are the jetties—miles of them in the lower portion of the

waterway—which help canalize the waters, and thus exercise some control over them.

But despite the unrivalled experience of American engineers and the giant system of flood control they have brought into being, nature seems to have the last word. The flood sometimes wins, and then it sweeps everything before it: villages are swept away, towns inundated, railways destroyed, and people drowned.

In the following pages I will tell something of the appalling loss caused by the great floods of 1937. I will tell also of a strange community I visited in a remote spot on the river; and something of the history of the Mississippi.

* * *

The history of the discovery by a European of the Mississippi river begins with a question mark. There is in the Royal Library at Madrid "The Admiral's Map" with which the name of Christopher Columbus is associated. This map was engraved in 1507, and it shows the three-pronged delta of a mighty river entering the Gulf of Mexico from the northward. But Christopher Columbus never visited this part of America, and it is surmised that he obtained the information upon which this chart was drawn from daring Spanish adventurers at Jamaica: men, who at that time, had explored the islands of the Caribbean Sea and most of the coast of the vast land-and-island-enclosed gulf to the north. Other names have been brought forward as discoverers, but their claims are mainly based on guesswork. The only thing that is certain is that the distinction of original discovery of "The Father of Running Waters" must be accorded to the Spaniards.

It was not until the year 1541 that we deal with facts. It was then that a soldier of fortune, Hernando de Soto, and his Spanish troops, venturing inland from the Atlantic seaboard, reached the river and explored the region west of it as far north as the Missouri and south to the Red river. He did not find the fabulous stores of gold he had expected to discover, and the following year he fell ill of malarial fever in this region and died.

It was over a century later before other important explorations were made of the Mississippi, this time by the French under the lead of Marquette, Joliet, La Salle, and others. They entered the valley from the north, and La Salle, during the years 1679-83, explored the river throughout its whole length, took possession of the great valley in the name of France, and called it Louisiana in honour of his King, Louis XIV.

Then came great schemes for developing the resources of the valley, for they were believed to hold vast riches. One Crozat, in 1712, secured from the King a charter giving him almost imperial control of the commerce of the Mississippi Valley. At that time there was no other European rival to dispute French domination. Crozat's trading privileges covered an area many times as large as all France, and as fertile as any on the face of the earth. But he was not equal to the opportunity, and, failing in his efforts, soon surrendered the charter.

John Law, a Scotsman, at first a gambler and subsequently a bold, visionary, but brilliant financier, succeeded Crozat in the privileges of this grand scheme and secured from the successor of Louis XIV a monopoly of the trade and development of the French possessions in the valley. He organized a colossal stock company called "The Western Company", but more generally known as the "Mississippi Bubble", in order to carry out his wild enterprise. So skilful and daring were his manipulations that he bewitched the French people with the fascinations of stock gambling. All classes of society—noblemen, churchmen, traders, ordinary citizens, and even servants—cherished the idea that fortunes could suddenly be acquired. At the height of the boom, shares had soared to forty times their original issued price.

But the bubble soon burst and its explosion upset the finances of this whole kingdom. Some years later, in 1762 and 1763, the French, after a supremacy of nearly a hundred years, found themselves crowded out of the area by the English from the Atlantic colonies and the Spanish from the south-west, the Mississippi river forming the dividing line between the regions acquired by those two nations. The

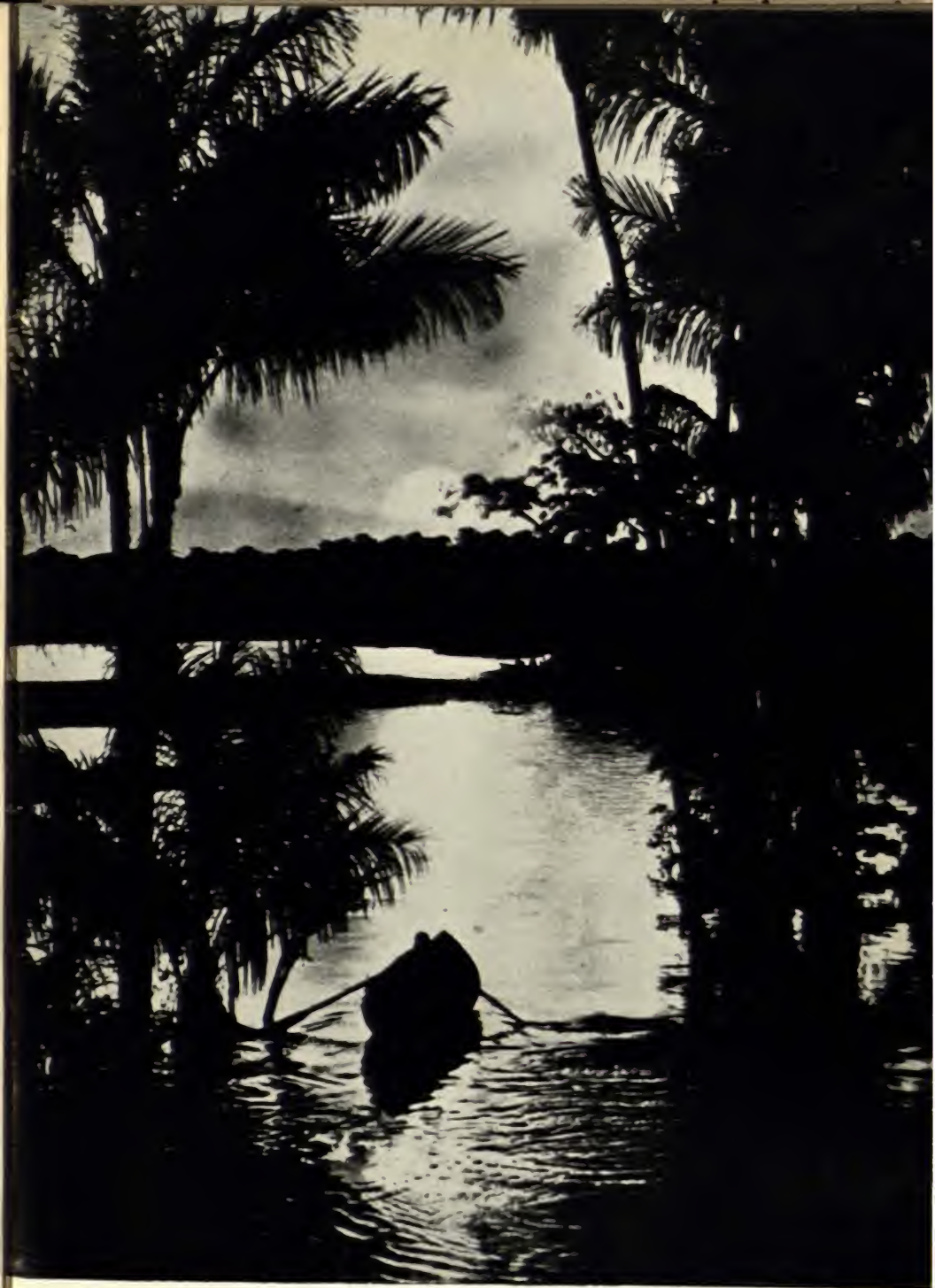
Spaniards, however, made little progress in peopling their new territory.

In the year 1800, soon after Napoleon I became the civil ruler of France, he sought to add to the commercial glory of his country by re-acquiring the territory resting upon the Mississippi which his predecessors had parted with in 1763. He entered, therefore, into secret negotiations, and by secret treaty French domination was once more established over the great river.

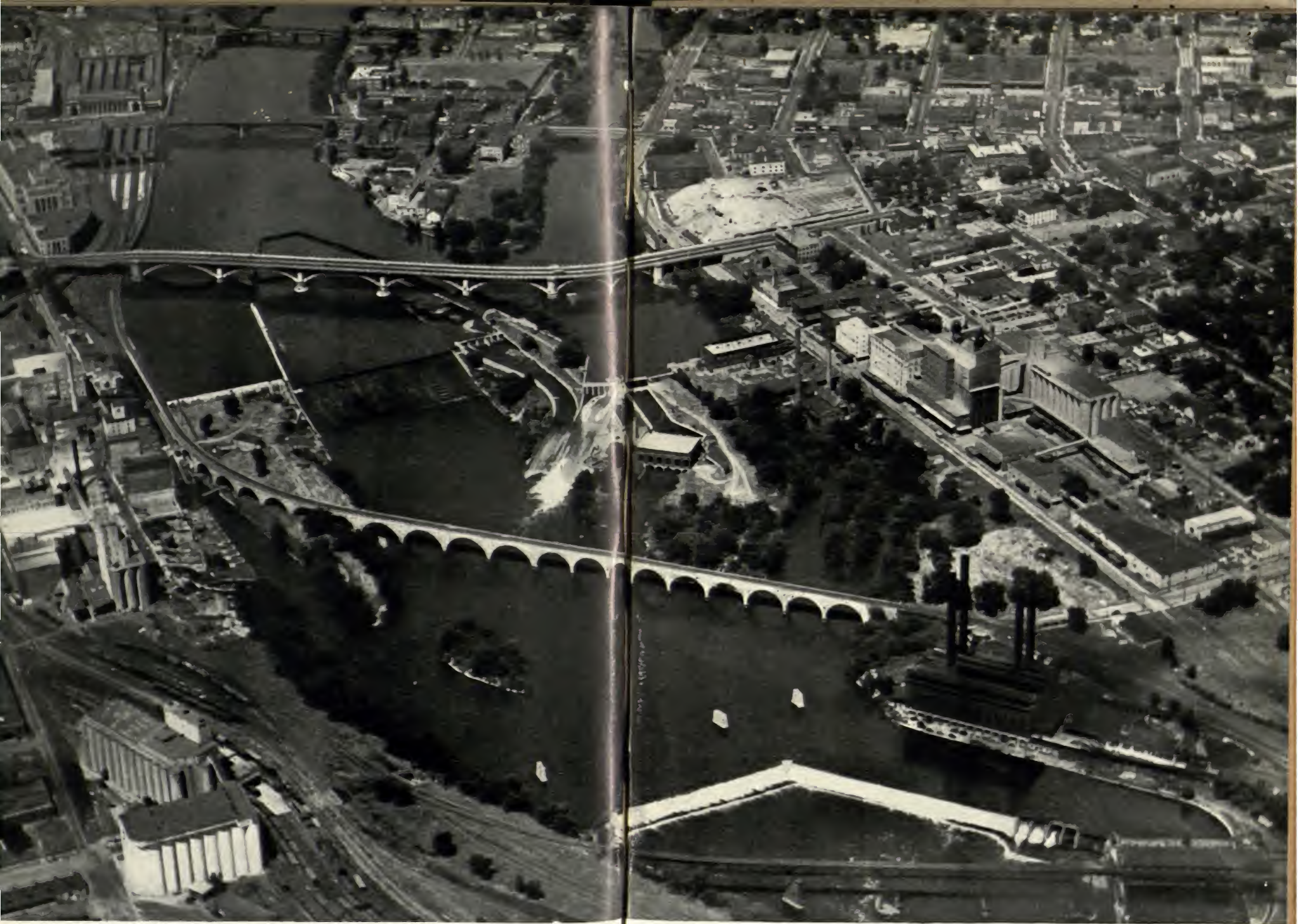
Trade now increased enormously, for the river served an immense hinterland. It was at this time, too, that New Orleans became rich, fashionable and gay. Great fortunes were made, great fortunes were spent. But there was much dissatisfaction amongst the Americans in having a foreign power controlling one of the most vital gateways into the interior of their land. So President Jefferson sent a special ambassador to France to negotiate for the purchase of the Louisiana Territory. The opportunity was a favourable one, for France was then in danger of a conflict with Great Britain. Bonaparte, apprehending war and fearing that he could not hold Louisiana, determined to do the next best thing—dispose of it to one of England's rivals.

Thus, in 1803, for a cash payment of about £3,000,000, Louisiana, a vast territory of some 900,000 square miles, was ceded by France to the United States. Even to this day, however, there remain strong evidences of former French and Spanish domination, especially in New Orleans—the “dream town” of France in the New World. A patois French is still freely spoken, especially among the Creoles. The nomenclature of many streets tells of their French origin. The famous annual carnival of “Mardi Gras”, the Bohemian atmosphere in sections of the city, and the strong Catholic beliefs of many of its inhabitants, all tell the story of the past.

Under the stimulating influence of American enterprise the commerce of the valley rapidly developed. In 1812 it entered upon a new era of progress by the introduction for the first time upon the waters of the Mississippi of steam transportation. Its river trade now grew from year to year, but with the coming of the railways in the middle of the



Sunset on the Amazon



Minneapolis: head of navigation on the Mississippi



Contrasts along the river front at New Orleans

last century its prestige began to decline. Steamers can now travel on some 4,400 miles of its waterways, while lighter craft can ascend many of its other waters.

Americans are proud of their great river. To them it is a symbol of the way in which their vast country has been opened up and developed. In American history it maintains leadership over all other rivers, although many of them are nearer to European discovery and settlement. And to millions of persons in the United States it remains "The Father of Running Waters".

In wandering about the world I have on several occasions come on strange little communities which are quite different from all the peoples around. Sometimes they have retained characteristics handed down to them through the centuries from forefathers who were in their day displaced persons from some other land. In my last chapter I referred to the strange Turkish colony on the island of Ada Kaleh in the Danube. I think too of the little town of Piana Greci in Sicily, whose inhabitants still retain many of their age-long Greek customs and dress. And then on the small island of San Pietro, off the south-western coast of Sardinia, I found the inhabitants still markedly retaining the language, customs, and character of their Genoese ancestors—markedly different from their neighbours.

It was on a tributary of the Mississippi that I came on a most unusual case of an isolated community, more or less cut off from the outside world by the difficulties of approach. The name of the place where they lived was Gee's Bend, and it lay sixty miles from the nearest town. To get there you could go by river, swampy for part of the way, or overland, but this meant traversing snake-infested ravines, covered with dense undergrowth.

Because of the difficulties of approach the inhabitants of Gee's Bend kept very much to themselves, being neither visited by the outside world, nor wishing to venture out from their own home. I decided, however, that I would like to see what these strange folk were like, even though I was warned against the trip. I was told that Gee's Bend was bewitched and ghost-ridden; that I would probably get

killed either on the way or when I got there, and that anyhow there was nothing to see but "a lot of godarned niggers", who had gone down the river a hundred years ago and had never been heard of since. In any case, these Southern folk with whom I talked were not interested in niggers.

Early one morning, with a young American companion, I set out by canoe to go down the river. It was easy going at first, mostly through cotton country, but gradually the land became more and more swamp-like. The mosquitoes, too, were terrible. Occasionally we came on some small settlement where a storekeeper had set up to trade with the few negroes in the neighbourhood—mostly the descendants of runaway slaves who knew that in such a spot they were out of reach of their former masters.

In time even signs of human life disappeared. The river diverted itself into many channels, thus adding considerably to our speed, for, time and again, we ended up in some dead-end backwater, and then, in an overpoweringly hot and damp atmosphere had to paddle our way back again to the junction.

Sometimes I thought we were lost completely, often I contemplated returning the way we had come, back to civilization; but my companion, fortunately, refused to give in. And so, on the afternoon of the fifth day of our river journey we finally reached our destination. It came almost as a surprise and seemed quite unreal.

Our unexpected arrival brought the majority of the local inhabitants down to the landing-place. They got hold of our baggage and brought us to a large mansion standing not far from the river. It looked fine at a distance, but closer inspection showed it to be in a state of neglect and decay. This house had once been the home of two white men, the Gee brothers, who had gone there in 1800, taking with them a handful of Negro slaves. When the Gee brothers had died, their relative to whom they had bequeathed their estate decided to sell, and so the property in 1845 passed to a Mr. Mark Petway. By that year the slaves had increased to one hundred.

Mark Petway had made his home at Gee's Bend, and, at

his death, had left the plantation to his son, who had died in 1900, the last white man to live there. His heir became an absentee landlord, and the negroes, now numbering several hundreds and closely inbred, were more or less left to themselves. No new settlers ever came to join them, and none of the population ever left to seek a fresh life elsewhere.

This forgotten community had a headman whose name was Androka, and he soon had us fixed up with an excellent meal of fried chicken, corn on the cob, and fruit. All the people were friendly, but they spoke a curious form of English, not easy to understand at first. They used many old-fashioned phrases, had a limited vocabulary, and had almost no knowledge of the outside world. They were even ignorant of laws, and were amazed when I gave them some kind of explanation about them. Who would want to steal, anyway, let alone to kill? Such things had never occurred in Gee's Bend. So I felt rather ashamed at even having suggested the idea of evil amongst so simple and honest a people.

Money meant nothing to them, for there was nothing to buy. There was a store in a little village some fifteen miles distant, but it was not an easy place to reach, for the track lay through a bad swamp, swarming with dangerous snakes. Twice a year, however, Androka organized a party to go there, taking with them the cotton they had grown and exchanging it for trade goods, food, clothes, utensils—all simple requirements which were shared out when brought back to Gee's Bend. A percentage of the cotton also went to pay the small rent charged by the Petway family.

Their daily lives were simple. Some worked on the land, looking after a number of goats and fowls, and doing nothing, occupied their time. Their marriage laws were unusual, for the ceremony did not take place until a mated man and woman had four children of their own. For it took six pairs of hands to work a crop of cotton on one patch which was regarded as being the task of one family. Their general moral standards were, however, very strict, and no casual laxity was even considered.

I asked what happened in cases of illness, for no doctor

ever reached this remote spot. I was told they had various herbal remedies, but that there was little sickness. Their teeth were in excellent condition. One woman in the village was the official midwife. Otherwise nature took her own course and apparently conveniently removed old and helpless people, for I never encountered any. Snakes were the chief danger, and every villager knew about cauterization.

Generally the people went to bed after their evening meal, for they had no lighting apart from fires. It was only on Saturdays, or rather the day before their Sabbaths, that they sat up late singing the same old songs which had been popular with their forefathers. They had lovely voices and a great sense of harmony.

Because of inbreeding, the villagers had few names. The surname of the majority was Petway, but there were also some called Bendoff, Merrill, and Wilson, but these were seldom used, for being unable either to read or write, they neither wrote letters nor received them. Amongst themselves they used a few simple Christian names, such as Tom, Edward, and Andrew, among the men, and Bella, Sarah, and Kate, for the women. It was a poor assortment and would have been confusing had it not been that they got over it by adding letters of the alphabet. Thus there would be in one family a Tom-C, Tom-K, Ed-F, and Ed-M. Sometimes they built the letters into the name, as was the case with the village leader, Androka being a derivative from Andrew-K.

The people were very religious in an Old Testament way. They regarded the Almighty as an avenging God, and on Sunday almost the whole day was devoted to services, partly of appeasement. We attended one of these services, which lasted for about three hours, half the time being devoted to a sermon by Androka. I expect he must have used the same theme, year-in, year-out. God, he said, was present everywhere, even in a boll of cotton or in a chicken. And the sun, rain, and lightning—these were messages from God. All the time there was heavenly punishment in this world, and eternal punishment in the next. By the time he brought his sermon to a close his congregation were not

asleep, but in a most excited state. And when they started into the next hymn—hymns occupying the other half of the service—they were in a most emotional state, shouting the words and many of the people moaning and shrieking and making all kinds of contorted movements.

They were Foot Washers, the Shouters, and the Holy Rollers, all combined. And then the congregation sang their last hymn:

De Lord can throw a thunderbolt
An' burn yo' cabin down,
An' He'd be right.

De Lord can raise a hurricane
An' blow yo' chimney stones away,
An' He'd be right.

De Lord can raise a mighty flood
An' drown yo' mules an' chillun too,
An' He'd be right.

Ain't He a terrible God!

The congregation had become almost frenzied. Men and women clutched each other, kneeling in prayer. They worked themselves into a state of religious ecstasy, writhing on the ground, shouting until they lost their voices, going through various forms of hysterical behaviour. They intoxicated themselves with a primitive form of religious frenzy that seemed similar to alcoholic drunkenness. Some cried out that they could see Jesus.

The last two verses of this hymn—the final one at all services—concluded the religious orgy. They screamed it as though they wished their voices to carry the words to heaven itself.

De Lord can make de sun so hot
And burn up all yo' beans an' corn,
An' He'd be right.

De Lord can make boll-weevil come
Eat up yo' field of cotton,
An' He'd be right.

Ain't He a terrible God!

This kind of religious frenzy may seem fantastic, but it is by no means restricted to Gee's Bend. Having travelled throughout the Southern states of the U.S.A., I found, especially off the beaten path, that the strangest of things happened, including various forms of voodooism which is still practised among the negroes dwelling upon the shores of Lake Pontchartrain. The annual service of worship of the Evil One occurs on St. John's Eve.

After spending a few days at Gee's Bend our time came to leave. This time, accompanied by a small escort of four negroes, we took the overland track to the store of which I have made mention. I felt that even the threat of death from snakes was preferable to going again on the river, so we handed over our canoe to Androka as a parting gift.

Since the time of my visit to Gee's Bend, in the 'thirties, I have heard that the Government has at last reached out its tentacles to this isolated community. They have been taught to read and write and to use money. Attempts have been made to modify their existing marriage laws. A road has been cut through to the place, and they now have their own store. In fact, civilization has at length reached these plain, kindly folk, and they will now know about laws and vice and the meaning of modern life. I don't think I would want to go back again and see them in their new life, their new dress. I prefer to retain my memories of their one-time simple paradise.

Through the ages man's fiercest fight has been to save his land from flood and famine—a fiercer fight by far than any war waged against a hostile kingdom. And nowhere has the war been waged against flood on a more titanic scale than in the valley of the Mississippi. I am not forgetting, of course, the more devastating floods caused by the mighty Hwang Ho, or Yellow River, of China, but here, unfortunately, it is a one-sided and often futile battle, for engineers have lacked the material means for combatting "China's Sorrow", when its waters run amok. There are also the floods which take place in India, where sinister waters claim their victims, on occasion by the tens of thousands.

De la Vega, a member of De Soto's expedition in 1543,

has given us the first description of a Mississippi flood. "The flood", he wrote, "was forty days in reaching its greatest height which was the twentieth of April and it was a beautiful thing to look upon the sea where there had been fields, for on each side of the river the water extended over twenty leagues of land." A less detached account of similar floods is given by a Father Marquette in 1673, when he wrote: "I have seen nothing more frightful. A mass of large trees . . . real floating islands. They came rushing . . . so impetuously that we could not, without great danger, expose ourselves to pass across."

In recent years there have been stupendous floods on the Mississippi in the years 1927 and 1937. In both instances the destructive floods overcame the levees, sweeping them away by the hundred and thus making rich, thickly inhabited areas vast swamps—which long ago they once were. Parts of several states were under water, close on a million people made homeless, hundreds drowned, while the material damage ran into millions of pounds.

Perhaps if I take the 1937 floods and describe them briefly, it will convey some idea of what such a calamity means. It was, indeed, the greatest of all the known deluges on the Mississippi river.

Early in 1937, record heavy rains in the State of Ohio caused the Ohio river to swell to such unheard-of heights that it sent the greatest volume of flood water in its annals racing down to the Mississippi. At its point of junction the waters forming a boiling, seething torrent of muddy water, clogged with smashed houses and barns, fences, furniture, telegraph poles, floating lumberyards, and drowned animals.

The American Red Cross rushed relief workers to the flooded areas. Admiral Grayson was in charge of their operations, and items from his scrapbook of newspaper headlines about the flood vividly unfolds the sorry tale:

"Sees sister drown in flood."

"Fear-crazed convicts fight in flooded cell."

"Woman adrift 10 days."

"Thirteen men cling 16 hours to floating barn."

"Floods close 15,000 miles of highways."

"New-born baby named 'Highwater'."

"Highwater warnings broadcast from airplane, said by negroes to be the voice of God announcing a second Flood."

Some twenty-eight thousand square miles of the lower valley of the Mississippi were turned into a lake nearly as large as the area of Wales. New Orleans, imperilled by the mad waters which threatened to surmount the 24-foot levees, was saved only by dynamiting those barricades below the city, allowing the pent-up torrents to surge across the lowlands to the sea. Heavy rains had deluged the valley with some 250 cubic miles of water! Of this at least some sixty cubic miles swept onward to the sea, a volume that the weakened levees could not contain.

Far and wide, rescue steamers churned the yellow tide, hauling bargeloads of silent, stupefied people, coaxed from their perilous retreats. Overhead roared aeroplane-scouts, reporting where rescue boats should be sent. On levees, ridges, ancient Indian mounds, wet, miserable man huddled with his domestic animals. Crawling up from the flood came foxes, rabbits, quail, deer, wild turkey, to climb freely over man's piled up belongings, unmindful now of him and his dogs. Only the snake was denied refuge. Animals shrunk from it; man killed it. It was probably so in the first flood.

After the floods had subsided came the danger of disease. This was perhaps the biggest task the Red Cross and Public Health Service had to tackle. Fifty thousand dead animals had to be burned or buried in flooded sections of Arkansas and Mississippi alone. Drinking water everywhere was contaminated. Whole villages soaked for weeks under water, reeked with decaying plant and animal life. Flowing water gave way to stagnant pools strewn with floating things black with flies. Mosquitoes bred by billions.

Inoculations and vaccinations were carried out by the hundred thousand. Millions of doses of quinine were provided. Thousands of tons of lime were shipped to towns. Safe water, safe milk, mosquito control, disposal of dead animals and garbage—these were just some of the problems

that had to be tackled. It was here, however, that the American genius for large-scale organization proved its merits.

Of more permanent damage was the enormous erosion of the topsoil, for every cubic foot of water had carried with it over forty pounds of mud. Even in non-flood years the Missouri river alone loses 275,000 tons of topsoil, thus giving it the popular name of "Big Muddy". While in a year of floods the figure on this one tributary totals a quarter of a thousand million tons. Little wonder, therefore, that this constant loss of valuable soil has turned parts of the United States into a dust bowl. To be sure, some of this soil comes to rest in the delta region, but Louisiana's gain is slight compensation for the loss endured by many of the other states.

Attempts to restrain the Mississippi began in 1717, when settlers at New Orleans constructed the first levees. Since then ever-increasing engineering works have been constructed. Congress, many years ago, set up a Mississippi River Commission to co-ordinate work on river problems, and its engineers have studied closely the river's behaviour and temperament. A vast levee building campaign is continually being effected, and flood-control made a scientific study.

Cutting down forest, overgrazing, ploughing up grass, and draining swamps all tend to increase local floods, and they, in turn, contribute to the super-floods. The biggest problem of all, perhaps, is the Ohio river, the starting-point of much of the damage. It is a big problem the American engineers have to face, this fight of men against their country's greatest river, but, one feels, it is a fight they may eventually win. Or will nature, the apparently unconquerable, still hold the last card?

Chapter Nine

THE ST. LAWRENCE

RIVER OF COMMERCE AND HISTORY

What is the length of the St. Lawrence river? In my gazetteer it is given as 760 miles, while in my atlas it is stated as 2,150 miles: a second atlas even raises this latter figure by a further 200 miles! The higher figures place this river amongst the twenty longest in the world, but at 760 miles it becomes very much of an "also ran".

The explanation for this huge discrepancy in stated lengths, hinges on where you place its source. On some maps the St. Lawrence is shown as making its start at the north-east corner of Lake Ontario and finishing when it reaches the Gulf of St. Lawrence. But if you take what is termed the Greater St. Lawrence, then you must go for its headstream to the St. Louis river in Minnesota; thence the waterway passes through Lake Superior, the St. Mary's river (by the Saulte Sainte Marie Canals), Lake Huron, St. Clair river, Lake St. Clair, Detroit river, Lake Erie, Niagara river (by the Welland Ship Canal), and Lake Ontario into the St. Lawrence proper.

It is certainly impressive to think of the Greater St. Lawrence, with its imposing drainage area of close on 600,000 square miles; with the eight American states and two Canadian provinces which border upon this giant river system, having a total population exceeding forty-five million; and with the great cities which centre on it, such as Chicago, Detroit, Cleveland, Milwaukee, Buffalo and many others, in the United States; while in Canada there are Montreal, Quebec, and Toronto. It is equally impressive to think of the huge tonnage of shipping making use of this greater waterway, despite the fact that during the winter, ice grips both the lakes and the river for some five months, thus

rendering navigation impossible. Even with this considerable obstacle, more shipping passes through the Saulte Ste. Marie (popularly called "Soo") Canals, with their giant locks, than the combined Suez and Panama canals, while the trade of the St. Lawrence lakes and rivers exceeds a thousand million pounds sterling during a season. It is no disputable claim, therefore, to say that this waterway system is the busiest in the world.

Even as it is the potentialities will be greatly increased when the long-delayed St. Lawrence Waterway and Power project is carried through. This great scheme involves the deepening of existing canals and the construction of new ones, which would thus enable large ships to sail right through from the sea to the ports on the Great Lakes—at present this is not feasible. It is also proposed to harness the power-potential of the rapids on the St. Lawrence with a plant which could produce 2,200,000 horse-power and give 6,300,000,000 kilowatt-hours of electricity annually. Unfortunately, certain vested interests in the United States have managed to hold up this scheme, which would be highly beneficial to both Canada and the United States.

One of the obstacles that would be sidetracked would be the Niagara Falls, one of the world's major natural wonders, source of great water-power, and a mecca for tens of thousands of tourists. But this scenic attraction is too well-known to need description here.

Having given this information about the Greater St. Lawrence, I now propose to restrict myself to a more detailed account of the St. Lawrence proper, for it has abundant interest and importance of its own. Ocean-going liners, for instance, can ascend the river to Montreal, which has become one of the great ports of the world. There are many activities, too, which flourish in the valley of the St. Lawrence. The river is a living symbol of a great historical background and of the peace and brotherhood that exists between the United States and Canada—not a single menacing gun or armed, warlike soldier to be found anywhere on this frontier. Would that the same thing could be said of Europe's great rivers, especially where they act as frontiers.

One of the peculiarities of the St. Lawrence is its width, which is considerable at its origin, near Kingston, and of Amazonian proportions after leaving Quebec, until it reaches its mouth, at the big island of Anticosti, where it is supposed to enter the sea. At this latter point it is ninety miles wide, while even one hundred and fifty miles upstream it is twenty-five miles in width.

Scenically the St. Lawrence is pleasant rather than outstanding, and it is, more than anything else, its links with history that gives it so much appeal to the ordinary traveller. No other river, in fact, has proved so important in the exploration of a continent. It is this historical background which I propose to deal with in the following pages, and more particularly with the French regions along the Canadian bank, for there is the river at its greatest, and there is human life most shaped by its presence and influences.

We do not know who the first Europeans were to enter the Gulf of St. Lawrence. The ancient Vikings possibly, or perhaps staunch Portuguese and French fishermen frequenting the Great Banks. What we do know as a definite recorded fact is that Jacques Cartier, that brilliant mariner and explorer from St. Malo, was the first European to navigate the river in 1534, going up almost as far as the site of Quebec, thus laying the foundation of the French Empire in the western continent. The discovery of Canada was an epoch-making event, for although it was not colonized till the days of Champlain, the claim of the French had been pegged out by Cartier and the French mind set upon exploration and development. He paid a second visit to the St. Lawrence the following year, and this time sailed as far as the point where Montreal now stands. This was where he first saw tobacco smoked. He left a quaint description of the process:

The Indians have a certain herb which they harvest every summer after drying it in the sun. Only men use it. They carry a certain quantity in a little bag hung round the neck, in which they also have a piece of stone or of hollow wood, rather like a whistle. To make use of this weed they bray it, put it in one end of the pipe, put a live coal to it, inhale the smoke and fill their

bodies with it till it escapes from their mouth and nostrils as it would do from the chimney of a house.

Ill-luck dogged this second expedition. Cartier, obliged to spend the winter in Canada, lost twenty-five men of scurvy and had to abandon one of the three "royal ships" that Francis I had lent him. Further, he made the common mistake of the European in dealing with the natives. He ambuscaded the Indians, captured ten chiefs, and brought them back to France as a curiosity. On his third journey he found the natives hostile and dangerous, and had to return prematurely from lack of food. However, King Francis rightly rewarded him for his discovery by making him Seigneur of Limoalou, and there, at the manor of Portes-Quartier, he spent the rest of his life. The manor-house has long been a farm, but the curious can see one arched doorway which bears the half-effaced arms of the family. It is near the village of Saint-Vincent (in Brittany), between Rothéneuf and Saint-Colomb. The exact date of Cartier's death cannot be stated, but it occurred probably forty or fifty years before Champlain founded the city of Quebec near the spot where he landed. It was Cartier, too, who called the region in honour of the saint's day, St. Lawrence.

Champlain came to the New World many years after Cartier. He travelled up the Ottawa river and made a number of excursions, including a visit to Lake Huron. He found the Indian tribes busily fighting each other, hostilities which continued until settled French rule was established.

My own first impression of Quebec—and one I did not subsequently change—was that it is the only real place of antiquity in the North American continent. One wanders, in the old town, by Norman roofs with Norman gables and Norman chimneys, relics of a past when human beings would seem to have come into the world with a sense of beauty as naturally as they arrived with a right hand. There is a square, too, which I visited, for it is very French and provincial with its cobblestones, French windows, and elegant lace curtains.

But it is the upper town, the region atop the cliff, which

gives one the genuine and little appreciated key to the spirit of the place. In a way, it is a key to much that one encounters in French Canada. Passing these old houses, these windows filled with books, religious manuals, and objects of Catholic devotion, it came upon me that this city has little to do with either the seventeenth or eighteenth centuries, but everything to do with a particularly characteristic and romantically complete period of the nineteenth. Of the seventeenth century, little remains. The old rooms and old wards of the Hospital Saint Louis are the most touching of the survivals. Of the eighteenth, there stands the fine wing of the Grand Séminaire, a little chapel, and a few houses. (Of the Ursuline Chapel, I will speak later.) The *ancien régime* has, in fact, melted like snow. The clock of architectural time on the rock stands at the mood of 1830. What the core of old Quebec really recalls, under its modernity and its guide-books, is a French provincial town of the time of Louis Philippe which has managed to get itself enclosed in a British military wall. What has been added of earliest Victorian England has merely strengthened the effect. These older streets with their grim façades and serious doorways are not backgrounds for eighteenth century wigs and brocades. They were meant to frame groups of such handsome young women in hooded bonnets and ugly-quaint puffed sleeves as one sees in the portraits of Ingres or might read of in Balzac. It was all like some long-forgotten era.

There is little what the French call *riant* about Quebec. It is a place of strong character as well as in natural appearance, a kind of fortress of the courage and tenacity of man facing on the one hand the intermittent human enemy and on the other the timeless weight of nature and the sure, recurrent savagery of winter and cold. People come and go with their beliefs and fancies, but stone and shadow and the corner of the street remember and remain. There is memory in these walls. Modernity means little to this spirit, which does not see or hear, but reflects. Not without poetic wisdom has the following motto been chosen for the heraldic escutcheon of the city: *Je me souviens* (I will remember).

As one wanders about Quebec, the streets seem to contain

many ecclesiastics: priests in black, nuns in black, and teaching brothers who wear the broad French hat, the French eighteenth-century soutane, and the white neckcloth of the abbés of old France. It is indeed a glimpse of eighteenth-century French Catholicism, something rather unique in fact. Perhaps it is because here no French Revolution thundered through the streets or beat at the doors; and here there were no dispossessed monasteries.

I spoke of the Ursuline Chapel. The first two pioneer Ursulines arrived in Quebec in 1639, but they were not very successful in Christianizing the Indian heathen girls. So they made the *Pensionnat Français* the centre of their work. More than three hundred years have passed since the first garden and first chapel of the Ursulines were made upon the rock. There is little change in the appearance of the buildings and the outward life of this community to-day. It is a sheltered life, and the sisters are seldom seen outside their walls.

Actually, the chapel is not old, being the fourth to stand on the historic site, but it is simple in design, timeless in effect, and the altar and furnishings are those of previous chapels. The altar is classical France and eighteenth-century Catholicism, a great affair of gilt and pillars. No noise intrudes. There is peace and beauty, and the little strangeness of many candle flames. To the right of the altar an arch with a grille stands in the wall dividing the chapel and the other world from the conventional enclosure to one side where the nuns come quietly to pray. When I visited the chapel it was in the late morning. Mass had been said and a smoke of incense lingered in the small and churchly quiet; in the pews two or three women of the laity remained in prayer. Behind the grille, kneeling in the other room, in her other world, a solitary religieuse continued her own meditations, coiled head inclined above her hands. The lilies and the crown, the adventure of the river, the sword and the cross were contained in the space as in a reliquary, with the ancient altar and its lights enclosed in a remembering peace.

It is when one stands on the historic Heights of Abraham that one's historical imagination gets full play, for surely,

in all the long history of our country few greater decisions have been taken than that of Wolfe's when he succeeded by a ruse in capturing Quebec from the French, and thus changing the whole course of Canada's future.

Perhaps the Pompadour was to blame, for at that time she and France were one. Louis the Fifteenth asked only to be relieved of the fatiguing task of being king, and the marquise controlled his powers. It was her political decision which led to one of the most tragic mistakes of all European history. She allied France with Austria, while Frederick of Prussia aligned himself and his country with Britain. And so it was that a British fleet came to the St. Lawrence in the early and bitterly cold winter of 1758. The French king's commander-in-chief in Quebec was the Marquis de Montcalm.

By the following spring the British armada had been considerably increased. Some hundred and fifty ships carrying an army of twelve thousand soldiers made their way into the narrowing reaches of the river. In command of the soldiers was General Wolfe, the very soul and vital spirit of the force, but frequently helpless with fever. By the end of July the fortress of Quebec was no nearer capture than it had been in May.

Even on his sick-bed Wolfe was studying and studying his maps, and he decided at last that only a frontal attack offered hopes of success. A fierce attack was launched on July 31—and failed. The ebbing summer turned the corner of August and September with Montcalm still undefeated. Then there came to Wolfe an idea, resulting from an observation of the untaken rock. He saw women washing clothes at a beach below the cliffs, and noted that the linen was being spread to dry on the bushes above. He took this to mean that a path ascended the cliff at this point.

It was decided that the attack up this path should take place on the night of September 12. Earlier on this same day two French deserters admitted that the path Wolfe had seen actually did exist, and that the cove was poorly guarded. The soldiers also informed their captors that on that very night a train of French barges was to descend the river with



(Above) Murray Bay on the north shore of the St. Lawrence, and
(below) the Chaudière district of Quebec





The Thousand Islands International Bridge, linking
Canada with the United States



(Above) a pagoda on the Yangtze Kiang, and
(below) herding domestic ducks



supplies for some outpost troops. Wolfe saw and seized his chance. He would precede this convoy and hoax any sentinels. Now chance enters again. Unknown to Wolfe, the French convoy had been countermanded, but through sheer carelessness the change in arrangements had not been notified to the sentinels. Thus they expected a train of barges, and one they had. But the boats were Wolfe's.

Afloat on the vast blackness of the river, in silence, the British barges glide downstream. It is one o'clock in the morning. The sky is moonless, the stars are veiled with mist. Seated in a smaller boat, Wolfe recites to his companions Gray's *Elegy*. It is to this solemn music that the curtain rises on an almost unequalled drama. The issue is not alone power over a continent or the end of a rivalry of race and tongue; more than events are at stake. Something of the qualities of values in life and the horizons of imagination are at stake. Meanwhile, the voice closes in solemnity.

The boast of heraldry, the pomp of power,
And all that beauty, all that wealth e'er gave,
Await alike the inevitable hour:
The paths of glory lead but to the grave.

"Gentlemen, I would rather have written those lines than take Quebec."

A voice speaking out of the dark made a first challenge of the boats as they passed the part of the shore called Samos.

Qui vive?

France! answered a captain who spoke good French. And he added: *Ne faites pas de bruit, ce sont les vivres.*

Passez!

There was no request for a password, no coming down to the shore to make sure of the identity of the speaker.

A moment later, a little farther along the cliffs, and the troops are landing. So unguarded were the heights that not a single shot disturbed the little army as the men scrambled up the easy path. The dawn began to pale. Far above the river and the gorge Wolfe's soldiers reformed, gathering quietly into companies. So easy and unharassed was the hour, that save for the wild American scene of rock and

bush, the red-coated infantry and the Highlanders in their plaids might well have thought themselves at morning drill in England.

Montcalm in the meantime had passed an uneasy night. He felt something was in the air, yet when morning came to hand all seemed peaceful. The French commander rode off on his horse to have a cup of tea with a friend, and it was while drinking this that the first news came to him of the landing by the British. And the appalling tidings were that the enemy was on the heights.

Rallying his forces, and to the beating of the drums, Montcalm approached the British. Wolfe had, however, chosen his field of battle, the cleared land of the Plains of Abraham, and was there entrenched. It was now ten o'clock. The French came on. Cannon fired. The British held the shock of the French fusillade; and victory was beginning. More volleys, more screaming missiles, and then the French broke, no longer an army but just a crowd of fugitives, each man eager to save his own skin. Shouts of triumph, wild English hallos and fierce Scottish cries of war rose from the British lines, and the victorious army went forward in a rush.

Montcalm was badly wounded in the *mêlée*. Wolfe lay dead. The night of battle closed about the city all darkness and cold. Quebec, however, was still New France. By dawn Montcalm had gone his way, and for three days more the French flag flew. But the situation was now past saving, the army broken with no food. Torrential rains fell and it became bitterly cold. Just before sundown on the 18th, the gates of the city were opened and General Townsend and his staff entered to the open square inside. Here the last troops of France in power at Quebec stood drawn up in line before the building, her last sentries were posted at its door. A pause, a roll of drums and the French commander tendered the keys of the city to the victors. Cannon sounded, and the British flag broke out on the west wind. The little tableau of eighteenth-century ceremony was the last of old France upon the rock.

Later in the dusk, those of Quebec who lived by the Place

St. Louis saw young British officers returning to look in evening quiet at the great view to the east. The far mountains and the horizons beyond the ships, the burnt villages where no light would show, the Isle of Orleans dark on the dividing streams of the incomparable river, the vast forest to the south uniting with the colonies, all this was now theirs to rule. The St. Lawrence was no longer a highway of Versailles; the distant rays of that faraway world of fashion, wit, and civilized intelligence would no longer strike along those wilderness eddies and the vast outpouring of the lakes. The French colonist and his hearth, the Indian and his tent—battle had won them for Britain to be part of the new riches of a merchant race, new riches to be one of the brightest jewels in the British crown. East of the rock and west, a thousand miles of the river and the sea, things almost timeless and things united with history waited together for the morning to come.

There is nothing like following a river to put one into the traveller's frame of mind, and the St. Lawrence is a good companion. The countryside is pleasant farming country, and there is always a busy shipping life to be observed on the river itself. But it is not the background of a countryside which remains vividly in one's memory, but rather unusual incidents, some of them being of quite a modest kind.

In the case which I am about to relate, it was the enticing smell of newly-made bread that provided the first step. It was being baked in a great roadside oven, and I could not resist the temptation to offer to buy a loaf from the apple-cheeked old lady who was in charge. She insisted, however, in giving me a loaf of the hot bread, and we got talking. Then it was arranged that I should spend the night with them in their nearby farm-house, so that I could tell them something about La Rochelle in France, from whence some of their long-distant ancestors had originally come.

It was dusk and I was taken into the large kitchen, which is invariably the living-room of the family in the French-Canadian house. What is native and traditional, what is of the earth and the patient hand has here a kingdom of its own. Here in a shelter of old-fashioned wooden walls

humanized by wood smoke and pipe smoke, the family gathers at ease about the wood-burning stove: here the ancestral crucifix hangs above the table and the bread. The more important school and church diplomas of Patrice, Marie, Jean, Marcel and little Cécile are trophies on the walls; in a corner stand the books which will be read again, on a winter's night; here the calendar, gift of the local garage, counts the holy days and the months, and brightens the wall with a saint's portrait in primary colours. Plenty of strong, old-fashioned kettles and pans of iron stand by the range, and in this particular home there was a row of Montagnais birchbark containers, all over a hundred years old and as black as the stove, still holding the staple supplies. Such memories of the Indian and his art were once far from rare in the older parishes. The Alonquin has influenced the French-Canadian farmers far more than he has the Yankee yeomen across the great frontier.

It is from such a kitchen, which is a picture of the one in which I was a guest, that the visitor, if he is lucky, will have a partridge stewed with onions in the local style; and a good recipe it is. Better than serving a roast bird tough as a slice of leather. There is no more excellent cooking of its kind than countryside French-Canadian. French provincial in its tradition, simple and good in its recipes and wisely skilled in its simplicity, it lives wholesomely and well from its sources of farm and field. In the sugar bowl you will not find the white variety, but maple sugar scraped fine. A particular touch of old France is the excellence of the omelettes, one of which concluded my meal. You can get a good omelette anywhere in the province of Quebec, and it is fried in country butter. Served with a wedge of honest, home-baked bread, a large pat of butter to one side, and a bittock of home-made wild-strawberry jam, and one's hunger and weariness make them their own grateful prayer. A meal fit for a king! But I fear kings very seldom are lucky enough to get such repasts.

Shortly after supper I was shown to my bedroom. Everything was just like what one finds in provincial France, and the bed, likewise, was most comfortable—which is more

than one can say about many English farm-houses. There was linoleum on the floor, and a devotional picture on the wall, with a small crucifix above the head of the bed. From the centre of the ceiling there hung down an electric bulb of lowish power, bright enough to let me see what I was doing, but most decidedly no encouragement for reading in bed. The room was all of one piece; nothing could have been more proper, orderly, and clean, and I felt a sense of well-being, surrounded as I was by simple, good people who were satisfied with their lot in life. I slept well and left the next morning with regret.

On another occasion I stayed in a home for the night when they were having an old-fashioned "sociable" evening—known in Quebec as the *veillées*. This is simply a local party given by some family in its own home, friends and neighbours being invited for a good time of everyone's making. The old national songs are sung and occasionally a French translation of something American. The local dancer will dance his local variety of eighteenth-century jig or even launch out into a tap dance of the great world (probably learned from "the young man who has been to the States"), the local violinist will scrape, the accordionist "obliges", and then everyone, including the oldest present, dances. They love waltzes. Then follow refreshments of a simple kind, and finally, about midnight, the party breaks up and each visiting family drives off in its own horse-cart or motor-car.

Perhaps you will think I have not told you much about the great river itself, of the commerce it carries, of the race among the ships to be the first through after the ice breaks. But, to me, the St. Lawrence has different memories: of history, of kindnesses done to me, and, above all, of the fine race of men and women for whom the banks of this waterway are home.

Chapter Ten

THE AMAZON

MIGHTIEST OF RIVERS

The Amazon, surely, is the mightiest of all the world's great rivers, for while it may not equal in historic interest or economic importance the Nile, yet the volume of its waters is far in excess of any other waterway. Its drainage area, for instance, is at least double that of any of its nearest competitors, the Nile, Congo, or Mississippi, and corresponds in size to the entire United States of America. Then, for the last two hundred and fifty miles of its course the Amazon is never less than fifty miles wide, while through its two hundred-mile-wide mouth pour one-fifth of all the moving fresh waters of the globe. So prodigious is its current that drinking water may be obtained a hundred miles offshore in the sea, and some discoloration of the ocean surface has been observed at a distance of six hundred miles.

Contributing to this vast volume of water are hundreds of tributaries, of which close on twenty are gigantic rivers in their own right, each exceeding a thousand miles in length. The most important of these tributaries enter the Amazon from the south, among them being the Tocantins which empties itself into the Para outlet by the sea—a fact which possibly makes its inclusion as a tributary doubtful—having travelled seventeen hundred miles from its sources in the highlands of Brazil; the Xingú, whose headwaters are still unknown; the Tapajóz, with its great waterfalls *en route* and a mouth eight miles wide; the mighty Madeira, so huge that it almost challenges the parent river itself, for its length alone is about three thousand miles, and it also has countless tributaries; the tortuous Purús; and the Ucayali, which

penetrates into the heart of the ancient Inca Empire and is the largest of all the tributaries, besides having many towns and settlements along its banks.

From the north come the Putumayo and the Yapurá rivers, both draining the mountainous terrain of southern Colombia; and then there is the swarthy Negro, most mysterious of Amazonian rivers, which takes its name from its jet-black surface, contrasting strangely with one of its own tributaries, the Branco, so named for its "white" water. At places the main tributary is twenty miles in width.

Most of the Amazonian rivers bear the names given to them by Indian aborigines. Some are majestic-sounding, as befits the great streams so named, like the Xingú and the Purús and the Juruá; some are melodious names, like Araguaya, Aripuaná, Tahuamanu, Inambary, and Juruena; some are strange-sounding Indian names, Tupi, or Quichua, Gy-paraná (pronounced Zhee paranah), or Jacundá, or Buyuyumanu—"manu" being the Peruvian Indian word for river; some might have been left by an Arabian conqueror, as the names of the Bolivian rivers Beni, Madidi, and Abuná; while still others bear the names of foreign explorers, such as the Heath, Orton, Chandless, and Roosevelt. Comparatively few, however, have Portuguese or Spanish names, among the exceptions being the Amazonas or Amazon itself, the Madeira, the Trombetas, and the Negro.

Many of these rivers are navigable waterways, extending in total length to at least 30,000 miles. A large fleet of steamers, in fact, plies up and down all the large affluents of the Amazon. It is possible, for instance, to travel on ocean-going steamers as far as Iquitos in Peru, a distance exceeding 2,000 miles, while tramp-steamers drawing fourteen feet can go a further five hundred miles inland. A line of steamers is actually in operation between Iquitos and Callao, the port of Lima, on the Pacific, by way of the Panama Canal, making a journey of more than 6,500 statute miles by water to connect two points, only 630 miles apart overland as the crow flies!

The common type of steamer used on the Amazonian

river is popularly called a *gaiola*, or bird cage, because of the open superstructure, adapted to the tropical climate. On some of the rivers shallow-draught stern wheelers are employed. Then, besides the steamers, there are many other craft to be seen. The Peruvians are especially skilled in making canoes, some of their dug-outs holding fifteen or more persons. They are likewise builders of rafts, known as *battalongs*, about forty feet in length, and these frequently bear a thatched hut, in which the family lives during the slow journey down-river, carrying with them sometimes cattle and pigs and a flock of poultry.

The Amazon rises in a mountain lake high in the Peruvian Andes and flows north, through a deep gorge, for hundreds of miles. Then it turns east and heads through the last range of the Andes, to debouch therefrom directly on to the great Amazonian plain which reaches away across the continent to the Atlantic.¹ In its earlier stages the river is sometimes like a swirling millrace, only fifty yards wide; two thousand miles below, the banks of its main channel are, in places, scarcely visible from each other.

For nearly all its length the Brazilian Amazon flows through a number of channels that are connected by cross canals, or *furos*. Only at one place, Obidos, has it a single channel. At this point it is less than two thousand yards wide and three hundred and fifty feet deep, and in mid-stream runs with a current of six miles an hour.

In spite of the cataclysmic floods that annually sweep over it, the Amazon Valley is not a gigantic morass, where man must be half-amphibious to survive. Probably not more than 5 per cent of its 2,700,000 square miles of drainage area are below the normal flood level of the rivers. The great mass is upland country. Hills and mountains are, in fact, quite a prominent feature of the Amazonian landscape.

Nor is the Amazonian forest the tangled and impenetrable jungle that is often imagined. The heavy growth of vines and trees that generally lines the banks of the rivers is

¹ The recent explorations of Sebastian Snow and John Brown confirm that the source of the Amazon is in or near Lake Ninococha, 16,000 feet up in the Andes above Lima.

probably responsible for this impression, but back of this matted curtain of vegetation the forest soon becomes fairly open, and one can usually walk through it without even the need of a machete to cut a way.

It was the lust for gold that led to the discovery of the mighty Amazon. Gold: it was sought by the Spanish and Portuguese everywhere in Central and South America, sought in fierce excitement as often as in dogged perseverance—sought, but too frequently, in a fury of blood.

The first explorers came on the mouth of the Amazon in the year 1500. They were two Portuguese navigators, Yanez Pinzon and Pedro Cabral, and they gave the river the name of "Mar Dulce", or "Sweet Water Sea". The probable reason being that they had tasted its waters while the sea-coast still lay beyond the horizon.

This, then, was the first glimmer of dawn in the Lower Amazon, but for many years no more knowledge was gained of the river. It was not, indeed, until 1541 that a Spaniard, Francisco de Orellana, became the first white man to descend its turbid waters. He was sent down the Napo (a tributary) by Gonzalo Pizarro in search of provisions for the forlorn expedition that had come over the mountains from Quito in search of El Dorado. Finding it easier to continue downstream than to return—and possibly tempted by the fact that he carried on his crude craft about forty-five tons of virgin gold—he took to the "flowing road" that months later carried him to the Atlantic.

Among the adventures which Orellana related to his credulous contemporaries in Spain, on his return there, was one of an encounter with a remote tribe of savages, known as the Yahuas, who to this day wear their hair long and dress in capes and skirts of grass, resembling women, and this caused the river to be given its present name, derived from the old story of Herodotus, regarding a race of women warriors called Amazons.

Ever since the memorable voyage of Orellana the process of exploring and opening up the vast wild wilderness world of the Amazon basin has been going on, but much still remains to be done.

It was in this glorious age of adventure, during the reign of Queen Elizabeth, that ships first sailed for the Spanish Indies from English shores. Some of these entered the estuary of the Amazon in their efforts to discover the mysterious El Dorado which was yielding its treasures to the merchant adventurers of Spain and Portugal. Foremost, among the captains of those days was Sir Walter Raleigh, the Queen's favourite, who sailed early in 1595 for the island of Trinidad, which he succeeded in capturing from the Spaniards. Turning his attention to the mainland, he crossed the narrow arm of the Caribbean Sea, and ascended the Orinoco river. Before being driven back by sickness and death among the crew he succeeded in getting into friendly communication with some of the wild tribes of the Orinoco-Amazon forests. From these he professed to learn of a city of gold in the far interior. Fantasy was so mixed with fact in Raleigh's descriptions of this journey that they served little or no useful purpose, beyond stimulating the desire of adventurers to cross the Spanish Main to this El Dorado guarded by women warriors.

Adventurers in search of treasure cities in the jungle and devoted Catholic missionaries were, however, for close on two hundred years the only explorers of the Amazon. It was not, indeed, until the middle of the eighteenth century that more intelligent and scientific study of Amazonia began. By then Portugal had secured possession of the greater part of of the valley.

Among the more renowned explorers of this wild region may be mentioned that great German traveller, Humboldt, the Frenchman, Castelnau; Wallace, the naturalist, and Bates, the entomologist, both Englishmen; Agassiz, who dealt largely with fish; and two remarkable women—Mme Coudreau, who spent years in exploring the rivers of the State of Para, after her husband had died in the work for which he had been engaged by the government of that State, and Dr. Emilia Snethlage, a Swiss scientist, who crossed overland from the Xingú to the Tapajóz through a wilderness unknown even to the rubber workers of that region.

Much of the work of opening up the Amazon Valley has

been done by men who pushed farther and farther up the river and into the country in search of rubber. Some were like the Suarez brothers, who built up a veritable empire in Bolivia; others were obscure rubber workers, whose journeys and discoveries in the jungle have never been recorded. Among the most extraordinary of these anonymous explorers have been the Peruvian *caucheros*, who wandered all over the Amazon Valley in search of new stands of the rubber-bearing tree. These they ruthlessly destroyed, and then pushed on in their jungle Odyssey to more virgin territory.

These restless nomads were to be found all the way from Bolivia to central Brazil, mingling with the Brazilian rubber workers, but generally waging a truceless war with the Indians, whose tribal lands they invaded in their tireless quest.

In the opening-up of Amazonia mention should be made of the amazing Madeira-Marmoré railway, built to serve as an outlet for rubber and other products of north-eastern Bolivia. Prior to its construction the rubber had to be brought down by large canoes. These shot the less dangerous rapids and were dragged painfully and slowly over the more perilous ones. The return trip was a matter of months and the losses of men from malaria, Indians, and capsizing in the rapids were enormous.

A first attempt in 1878 to build a railway to span the most difficult section of the river had to be given up owing to the frightful mortality among the workers; it was not until early in the present century that the work was resumed. Even then men died by the thousands of disease: four hundred out of six hundred German labourers died, and Spaniards, Greeks, Barbadians, and other elements that were brought in suffered as heavily. When the line reached the fatal camp of Jacy-Paraná it seemed for a time that the whole enterprise would have to be abandoned again, but heroic measures were instituted. Quinine was imported literally by the ton and served with the meals in all the camps, buildings were screened, and an efficient medical service operated. When at last completed in 1913, this

225-mile railway—the most wonderful forest railway in the world, and at the same time the most isolated—proved to be the most costly ever built, for about £8,000,000 had been expended on its construction. Unfortunately, too, it was finished too late to be more than a financial liability, for the great rubber boom had collapsed and traffic declined to such an extent that to-day only one train a week makes the run through the jungle, taking two days for the trip, with a night's halt on the way.

The rubber boom was a most fantastic era in the history of the Amazon Valley, which, for a long time, was the principal source of the world's supply, until the vast plantations of the East came into production and left to the wild rubber of the Amazonia a very minor place in the world market.

It was shortly before the ascendancy of plantation rubber that prices of crude rubber soared as high as eleven shillings a pound—and there were people who thought this dizzy price had come to stay. Those were bonanza times for Para and Manaus and Iquitos and for every little settlement whose life depended on the price of the "black gold". Men accumulated in a few months in the far interior fortunes, which they came to spend in a few days of hectic pleasures in the towns, until empty pockets sent them back again to the solitude and hardships of the forest. Champagne and the roulette wheel accounted for much of the money spent; but there were some men who travelled to Paris for a few days in order to spend their fortunes, returning again, however, to the jungle, when these were exhausted. The name given to an island in the mouth of the Juruá—I*lha da Consciencia*, or island where men bound for the rubber country put ashore their conscience—bears witness to the ruthlessness with which some of the ephemeral wealth of that time was made.

After the peak of the boom prices fell with terrifying rapidity, and those who had not liquidated their high-priced stocks in time were faced with ruin. This was followed by a crisis from which the Amazon Valley has never recovered. An exodus of thousands of rubber workers followed from

the upper rivers. Torsos of great unfinished buildings in Manaus testify to the completeness of the disaster that reduced the resources of the state and of its inhabitants.

The Amazonia, especially the Brazilian and Bolivian parts of the valley, has continued to produce rubber in considerable quantities. Temporary rises in the price of crude rubber have given a fitful encouragement to the local industry, but it is clear that only by the adoption of the plantation system can the Amazon country be enabled to compete again on anything like equal terms with its formidable rival of the mid-East.

Since the white man first came to the valley of the Amazon he has hardly made great progress in developing the country. There are few important cities. At the mouth of the river is Para, or Belem; far inland is Manaus, still quite an important centre, although with shades of that glorious past when it was the Rubber Capital of the world; then, further inland still, is Iquitos in Peru, a modern town with a population of around 35,000.

In all the tropical part of Amazonia there are only some 1,600,000 inhabitants, of whom 1,300,000 live in Brazil and the remainder in the five Spanish-speaking countries, but largely in Bolivia and Peru. This gives a density of population of less than one per square mile, fewer, in fact, than the population of the Sahara. This is, indeed, a strange contrast: two regions of comparable area, with the world's best watered region more sparsely settled than its greatest desert.

The basic race is Indian, but there is much mixed blood, a product of the crossing of white with Indian and Negro in Brazil, and in the Spanish countries of white with Indian. In Brazil these people are loosely referred to as *Caboclos* and in Bolivia and Peru as *Cholos*.

There are still small groups of savage Indians in the jungle fastnesses of the interior, but they seldom appear along the river. Many tribes often reputed to be "bravos" or "barbaros" are innocent of any hostile intent so long as they are left alone by the whites.

Among the more savage tribes must be included the head-hunting Huambisa. They paint their bodies with red and

blue dyes, wear ear ornaments—and little else. Painted marks on the face indicate the tribe to which they belong—a kind of native passport, while decorations on the body indicate valour in head-hunting, much as soldiers and sailors wear medals on their breasts.

According to C. W. Domville-Fife, who once visited these people, they are very clean in their habits, often indulging in mixed river bathing by the hour. They hunt and fish with the aid of poison, made by pounding a certain root and placing the flour so made into a bag which is suspended by a cord in the river. When the fish come near to it they are rendered insensible and float to the surface, where they are easily speared. This curious narcotic does not in any way spoil the fish for eating. Tapir, monkey, and wild pig are killed by poisoned arrows in a similar way. The weapons used are long, thin spears of wood, bows, blow-pipes, arrows and darts steeped in poison.

The blow-pipes of the Huambisa are usually about nine feet long. They are made in two halves, which are joined together after the centre has been carefully scooped out to allow for the passage of the dart. A mouthpiece is fitted at one end, the two halves are bound together with grass, and the whole is covered with a kind of gum. The darts are very thin, sharp, and poisoned. A wad at one end acts as a plunger; and they are carried in a quiver which is fitted with monkeys' teeth in such a way that when each dart is withdrawn for use the poisoned head is half severed. This is done so that when the point enters the victim it breaks off short and does not drop out of the wound with the weight of the dart itself. The quiver is made of a section of cane with a poison gourd attached, and is slung from the shoulder.

The huts of this tribe are made of palm, and each one accommodates some ten families. They are seldom less than 60 feet long, by 40 feet broad and 20 feet high. Inside, the sleeping platforms of cane are arranged round the walls and the centre is occupied by a ring of fires, together with the earthenware pots and pitchers. The beds are curious affairs. Made of cane, the bedstead extends only as far as the knees, then comes a space, a foot-rail and a fire. When lying upon

this the body, as far as the knees, is suspended upon thin, springy canes, and the feet are prevented from hanging over the end by a foot-rail. Just beyond this is the fire used to warm the soles of the feet.

When making fire the Huambisa either rub two sticks together in a similar way to natives the world over, or by hitting one stone with another and causing sparks to descend in a shower upon a small mound of dry, powdery substance obtained from the pith of a palm dried in the fierce sunlight. Once a fire is lighted, however, inside a hut it is tended by the women and is seldom allowed to die out.

Needless to say, the curing of human heads is legally forbidden by the governments of the tribes concerned, who still, however, practice it; and strict steps are also taken by the authorities to prevent the sale of heads as souvenirs. But in the Musée de l'Homme in Paris can be seen specimens of these human heads reduced to the size of an orange without distortion of features. No white man has ever seen the method by which these heads have been treated, but the general lines of reduction are known.

The heads are left for several days in the death-house, and, when sufficiently dried, the bones are extracted through the back and base of the skull. Hot stones are then introduced to harden the skin. The lips are reformed on a piece of wood, or sewn up with thread, and the skin slowly shrunk in the same fumes as those which mummify the corpses of the dead.

Later, these trophies are worn either round the waist or suspended from the neck of a warrior when going into battle as a warning of the fate of anyone who opposes him.

I have no space here to go further into the customs of the many strange Amazonian tribes, some of whom have probably seldom even seen a white man. These include the cannibal Nonoyas, who fatten up prisoners taken in war before eating certain selected parts of their bodies. Another tribe, the Carijonas, use a curious herb-potion which places anyone taking it in a condition in which full consciousness is lost, and the subconscious mind is thus open to receive

telepathic communications. This drug has actually been tested out by one or two Europeans and proved to justify its claims. In one such case a Colonel Morales became conscious of the death of his father and the illness of his sister living hundreds of miles distant and separated by impenetrable forest. A month later the colonel received news of the death and illness which had occurred at the actual time he was in a subconscious state.

There is much less wild life in the Amazonian jungle than one might expect. The largest native animal is the tapir, a relic of former ages. Although he bears more resemblance to a pig, his flesh suggests beef. Largest of the savage beasts is the jaguar, an animal that may not be particularly aggressive, but is not a creature to be played with. It has the very dangerous habit of lying stretched on the limb of some great tree, where it is impossible to distinguish it; not so much because of its protective colouring, which certainly harmonizes with its surroundings, but because it takes care to keep the body of the bough between itself and the passing victims for which it is watching. It is not at all particular what this victim is. It usually has to put up with some forlorn spider-monkey, or howler, and perhaps with a dry old sloth, or still drier ant-eater; but it is partial to domestic animals of all kinds, especially dogs and men, and though it is true that carnivorous animals are slow to attack men as a rule, unless they are provoked, the jaguar is one of the exceptions that prove the rule: if a plump specimen of the family Primates, *genus homo*, happens to pass under its favourite lurking tree, it drops silently, and swift as a lightning stroke, on the back and shoulders of that unfortunate being.

Pumas, another denizen of the Amazonian jungle, may not be as dangerous as jaguars, but they will fight desperately if wounded and unable to escape. Other wild animals include peccaries, capybaras, sloths, armadillos, and monkeys in profusion.

The peccary looks rather like a wild pig, but actually belongs to a different family. There are various species, but all are about fifteen to eighteen inches high, eat almost any-

thing—fruits and nuts, frogs, snakes, insects, and roots. The collared peccary travels in small bands and sometimes will “tree” a hunter, for its tusks are sharp and dangerous. The white-lipped peccary travels in larger bands and is even more dangerous. All peccaries have a strong odour that comes from a gland on the back.

The capybara is the largest of all rodents, being about four feet long and weighing about one hundred pounds. It has webbed feet and is very fond of swimming and diving. It is, however, a quiet and peaceful animal and never shows any friskiness or playfulness. Five to eight babies are born in each litter. They follow their parents closely while they are small, but do not seem to be very affectionate.

The remarkable thing about the sloth is that, apart from its laziness, it spends most of its life upside-down, clinging to the branches of trees. Indeed, it is difficult for it to stand upright or walk on the ground, although it sometimes has to cross the ground to get from one tree to another. It can swim fairly well. There are three-toed sloths and two-toed sloths, the names referring to the numbers of the long, curved toes on their front feet. These toes are actually hooks by which the animal clings to the branches as it moves cautiously from one limb to the other. A full-grown sloth is about the size of a large bull-dog, and is covered with long, coarse, brownish or ashy-grey hair. An extremely odd thing about this hair is that in the jungle it is often coated with a tiny plant that makes the animal look very much like a part of the mossy trees in which it lives. The sloth is most active at night when it is hunting its favourite food, the leaves of the cecropia tree.

Several million years ago there were *real* Giant Armadillos in South America; but to-day the largest have shrunk from about eight feet to five. You can see this grotesque animal, with the heavy “armour plating” on its head, body and tail, in many zoos.

The howler monkeys live up to their name, for they make a truly terrifying roar, which is far more disconcerting to the ear, than it is dangerous. Monkeys of all kinds are a highly esteemed article of food among many of the

natives and are consequently hunted constantly, especially in the vicinity of plantations because of their predatory habits.

Bird life is prolific, including parrots, macaws, egrets, cormorants, and ducks. Strange birds are also numerous, such as the grotesque jabiru stork, the reptilian-like hoatzin, which have claws upon their wings to climb with and are excellent swimmers, and the rock, the male bird being considered the most beautiful bird in the world, with its flame-coloured coat topped by a double-crest from neck to beak like the plume of a Roman helmet.

Most gruesome of all animals are the legions of bats. Amongst them are at least two species of vampire-bats, those dreadful blood-sucking creatures. Explorers have seen caves full of them, clustering from the roofs in thousands; at night-time flying abroad in myriads. It is obvious that they must live on more than blood—which must be considered to be in the nature of a luxury dish—for local supplies are quite inadequate.

A disagreeable feature of the Amazonian towns is the presence of flocks of funereal buzzards, usually perched on the most conspicuous buildings in the place or strolling about the streets with impunity.

The rivers teem with fish. There is the piraracu, the largest fresh-water fish in the world, often attaining a weight of 300 lb., with a length of six feet. The flesh is cured and salted in sheets, and is an important article of food among all river dwellers. The tongue of the piraracu, when dried, resembles a file, and is used by natives of Amazonia as a substitute for this tool. Among other fish caught by the Indians is the tucanaré, and the piranha, or river shark. These latter fish, though not very large (seldom more than a foot long) are most feared on the rivers of the Amazon Basin. When opportunity offers, it will rise suddenly from the river bed, lunge out of the water, and with its razor-like teeth bite off a finger, hand or toe. In trying to catch these cannibals, the very strongest wire has to be used, for their vicious, powerful teeth can crush through any ordinary material. These razor-toothed animals take only a few

minutes to strip the flesh to the bone of either man or beast who becomes their victim.

Alligators are very numerous in Amazonia, despite the organized pursuit of hide hunters. They can be caught by floating within their reach a piece of hardwood, covered with jaw meat, in which the alligator's teeth become imbedded when it snaps at the bait. Turtles abound on some of the rivers, in spite of the wholesale destruction of their eggs, and their pursuit is quite an important local industry in certain districts. The hunters shoot them in the neck with arrows, to which a large cord is attached. They are then herded in pens by the hundred, to be sent down to Manaos or Para.

Electric eels are much dreaded by the Indians because of the terrible and sometimes fatal shocks they give when touched with the naked hand or body. Some of them are seven feet in length and nearly six inches in thickness.

Other forms of marine life include sea cows, or manatees, who invade the river from the sea to be caught in nets or harpooned by the natives; dolphins and anacondas, the latter being the longest of all snakes. Bates credits one specimen he encountered with a length of forty-two feet.

Poisonous reptiles are another hazard of the Amazon. The best-known snakes are the jararaca and the surucucú, both of which are poisonous. The rather innocuous boa constrictor is occasionally encountered and is even domesticated, being kept in houses for the purpose of ridding them of rats and bats. Much dreaded is the sucurijú, up to eleven feet in length, and the source of many myths among the natives, whose imagination enhances its size and prowess to terrifying proportions.

The Amazon, unfortunately, is as rich in insect life as it is poor in large fauna. These insects include malaria-bearing mosquitoes and ants in inconceivable numbers and a vast range of species. To the inhabitant and traveller the ants are an unmitigated curse, for they eat up everything they can, and a coat or a pair of boots left unprotected at night will be only remnants by the morning. Especially dreaded are the fire ants, whose bites leave a man's skin scarred with

burning welts. While riding along a jungle track or canoeing under overhanging trees, it is easy to be exposed to their vicious attacks, and a canoe which is boarded by these insect buccaneers is a most uncomfortable craft and has to be quickly abandoned.

Another savage species is the taxi ant. These pests are often more than an inch long, and a pinch from their powerful mandibles is a most painful experience. Less savage but more destructive is the sauba, or leaf-cutting ant, the principal enemy of agriculture in the Amazon Valley, for it strips vegetation and makes farming impossible in many areas.

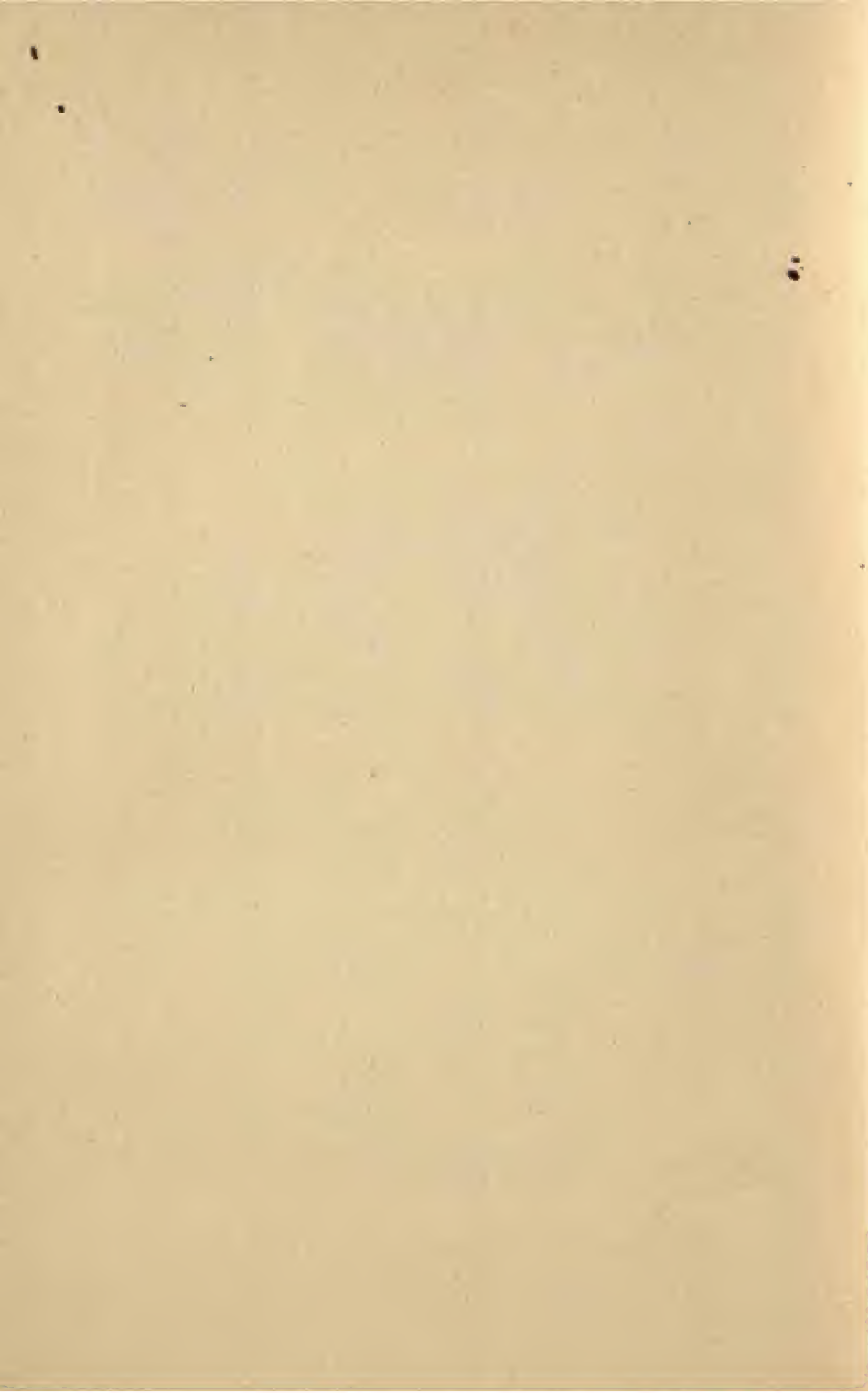
Fortunately into this world of insect pests, whose numbers are legion, there are some pleasanter forms of insect life. There is, for instance, a profusion of butterflies: great blue morphos butterflies with brilliant cerulean wings; dragonflies with iridescent wings; and a strange creature known as the Traffic Bug, which carries a red light in its head and a green light in its tail. Within an area half a mile square Agassiz counted 117 species, while Bates collected 770 around the city of Para. There are only 321 known species in all Europe.

As far as trees, plants, and flowers are concerned the Amazon Valley is just one gigantic greenhouse. With trees alone, there is said to be more than two thousand varieties, the most important being the india rubber—a large tree. The Brazil-nut tree is another forest monarch, sometimes forty feet in circumference and having pods weighing forty pounds. The Babassu Palm is, perhaps, the most valuable of trees, for its leaves provide material for hats and baskets, its fibre for ropes, and its oil-bearing nuts supply a substitute for olive oil and edible fats, besides being used as fuel on the river steamers. Then there is a profusion of mahogany, ironwood, and other hardwood trees. Some of the trees supply materials for medicines, such as quinine and coca; others, in contrast, provide evil herbs, like the assacu, with its poisonous sap, the curare, used by natives to tip their poisonous darts; and the even more deadly *mata calado*, or "silent death", which kills and leaves no trace.

Among innumerable flowering plants are orchids, which grow quite wild, and giant water lilies, whose leaves are sometimes eight feet across. But the whole Amazon Valley is a paradise for the naturalist.

When one considers the vast economic potentialities of Amazonia the question arises why it should still remain so undeveloped a land. For, in spite of four centuries of exploration, large areas still await the coming of the first white man. The courses of all the important rivers are well known, but there is much *terra incognita* between some of them, as between the Negro and the Yapurá, or between the Santiago and the Pastaza, lying in Ecuador and Peru; also a wide belt of territory extending across the northern part of the State of Para yet remains to be explored.

Many myths and misconceptions regarding these unknown regions still persist, just as they did, not so very long ago, about many parts of Africa, which are now prosperously colonized. The fact is, however, that Amazonia is neither a hell nor an earthly paradise. By far the greater part of it is entirely habitable by white men, for the climate, when proper health precautions are seen to, is no worse than elsewhere, and, in fact, its heat is often much exaggerated, and once you get away from the vicinity of the river and into the higher-lying parts is anything but oppressive. With the rich soil, ample water, and sunshine, many crops, including cotton, grow excellently—for even insect pests can be overcome with modern methods—and all that is required are properly organized schemes of development. One day these will mature, if only to provide for over-populated areas elsewhere. Amazonia is, indeed, a challenge to our civilization. Humboldt long ago forecast thriving cities on the river banks. In 1853 Alfred Russel Wallace wrote, "I fearlessly assert that here the primeval forest can be converted into rich pasture and meadow land." In fact, for the cost of a few atom bombs a far better return could be obtained in spending the money on the conquest of the Amazon.



APPENDIX

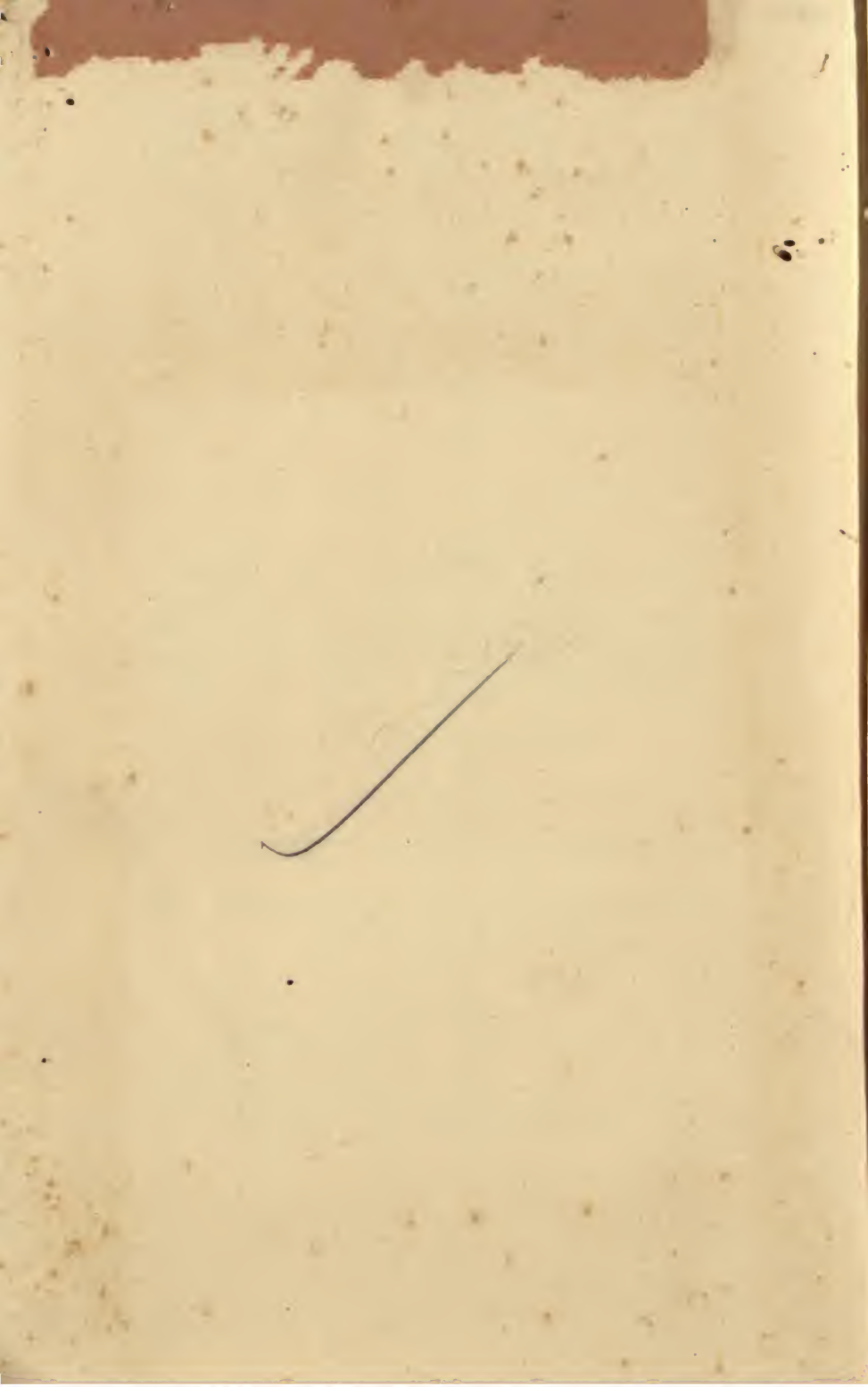
LONGEST RIVERS OF THE WORLD

River	Continent	Approx. Length in Miles	Approx. Drainage Area in Square Miles
Mississippi- Missouri	North America	4,200	1,240,000
Amazon	South America	4,000	2,722,000
Nile	Africa	4,000	1,107,000
Yangtze Kiang	Asia	3,200	650,000
Lena	Asia	3,000	1880,000
Congo	Africa	3,000	1,425,000
Amur	Asia	3,000	770,000
Mekong	Asia	2,800	350,000
Yenisei	Asia	2,700	1,000,000
Hwang Ho	Asia	2,600	400,000
Niger	Africa	2,600	600,000
Ob	Asia	2,400	1,000,000
Mackenzie	North America	2,350	700,000
Volga	Europe	2,300	563,000
Murray-Darling	Australia	2,300	410,000
Yukon	North America	2,300	330,000
La Plata-Parana	South America	2,200	1,200,000
Zambezi	Africa	2,200	513,000
St. Lawrence (Greater)	North America	2,100	570,000
Rio Grande	North America	2,100	200,000
Brahmaputra	Asia	1,800	360,000
Sao Francisco	South America	1,800	250,000
Salween	Asia	1,800	
Danube	Europe	1,750	320,000
Euphrates	Asia	1,700	430,000
Ganges	Asia	1,500	430,000
Indus	Asia	1,500	370,000
Nelson- Saskatchewan	North America	1,500	360,000

NOTE.—Tributaries of the above rivers are not listed here.







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